

Alana Brooke Powell

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PROFESSIONAL SUMMARY

- Self-motivated research scientist with 2+ years of laboratory and field work. Experience in soil sample analysis using infrared spectroscopy, density mapping development using MATLAB-based GravMag, in addition to field specimen characterization and dissection of organic tissue samples.
- Proficient in multiple programming languages including Python and C++, with a strong foundation in statistical data analysis (using R-script), Geographic Information Systems (GIS), and information visualization tools such as PowerBI and Tableau. Adept at applying computational techniques to solve multivariate scientific problems.
- Skilled in scientific writing and reporting, with a strong commitment to environmental justice and demonstrated leadership skills.

EDUCATION

Bachelor of Science, Computer Sciences
University of Colorado, Boulder
Current GPA 3.43

Exp. May 2026

Bachelor of Arts, Environmental Science
Minor in Biological Sciences
Florida State University, Tallahassee, FL

EXPERIENCE

Environmental Scientist

April 2025 - Current

TerraGraphics Environmental Engineering, Pasco, WA

- Perform deliverable specific research in compliance with client directives to meet overall project goals
- Data engineering and management of multivariable data sets
- Attend weekly meetings with sponsors, clients, and project stakeholders to meet target deliverables

Environmental Field Technician and Analyst

Jun 2019 – Sep 20

Pace Analytical, Pompano Beach, FL

- Performed field composite of effluent and influent wastewater, ground water, and drinking water sources using compositor and/or peristaltic pump methods. In addition, Xylem Multiparameter meters were employed to record pH, temperature, salinity, percentage of dissolved oxygen, and conductivity.
- Data reports were compiled and analyzed, in addition to summarized field activity for presentation.
- Integrated Environmental Protection Agency regulations into daily work concerning hold times, methods, and preservation for sampling analysis.

Undergraduate Research Assistant

Florida State University, Tallahassee, FL

Dr. Jeff Chanton Lab:

Aug 2017 – Aug 2018

- Co-led a study in the analysis and characterization of carbon sequestration in salt marsh peat samples supplied by collaborators at the Smithsonian Environmental Research Center in Maryland.
- Samples were processed using a ball mill peat grinder, optically characterized and scanned using a Fourier transform infrared (FTIR) spectrometer to obtain a unique infrared spectrum of absorbance, mineral content, and carbohydrates in comparison with sample depth.
- Data was compiled and sorted using Excel. Data was analyzed using statistical methods in R Script to perform model fitting.

Dr. David Farris Lab:

Jan 2017 – Aug 2017

- Assisted in the study of the effects of gravitational pull in relation to ground depth/density for the Pedro Miguel fault along the Panama Canal. The findings led to a better understanding of the relationship between the tectonic and magmatic evolution of the Panamanian Isthmus during its formation.

- Results were plotted using GravMag software to simulate the Pedro Miguel fault and explore how subsurface bodies would affect observations made at the Earth's surface in relation to gravitational effects. Data was processed, plotted, and presented for Dr. Farris to review.

Dr. Charles Cotton Lab:

- Assisted in performing aging analysis of shark species *Rhizoprionodon terraenovae* by dissecting specimens to obtain spinal, skin, and muscle samples - as well as collecting and recording data.

Environmental, Oceanic and Atmospheric Sciences Field Work

Coastal and Marine Laboratory, Florida State University

Dr. Dean Grubbs Group:

Aug 2016 – Dec 2018

- Tagged, collected, and managed specimen characterization data for *Sphyrna tiburo* sharks along the coast of the Gulf of Mexico, in assistance with graduate dissertation work.
- Assisted in general monthly shark surveys in the Gulf Coast which tasks included specimen characterization, tag and release.

Dr. Charles Cotton Group:

May 2017

- Assisted in research study of the ongoing ecological impact of the 2010 BP oil spill.
- Collected specimen morphology, sex and species including live organ/tissues samples, in adverse weather conditions.

SKILLS AND TRAINING

Experimental Techniques

- Sample Characterization: Xylem Multiparameter Meter (2019) • Fourier-transform infrared spectrometer (2017) • Laboratory Ball Mill (2017) • Optical Microscopy (2017) • In Vivo Handling and Safety (2017)
- General: Compressed Gas Safety (2017) • Hazard Communication and Hazardous Waste Lab Safety (2017) • Laser Safety (2017)

Software

- MATLAB • R-Script • Python • Microsoft Suite: Excel, PowerPoint and Word
 - Data analysis, model fitting, data smoothing, presentations, and typesetting of reports
- GravMag
 - 2D depth modeling of subsurface bodies and how they would affect observations made at the Earth's surface
- GIS Tools: ArcGIS, QGIS
 - Mapping, spatial analysis, and geospatial data management
- Information Visualization Tools: Power BI, Tableau
 - Creating interactive visualizations, dashboards, and data-driven reports

Professional Development

- Fall 2018 Undergraduate Research Seminar
 - Weekly speaking engagements under Dr. Jon Ahlquist's supervision for a private audience of 10+ undergraduate students on topics including my affiliated research and field work, followed by question-and-answer sessions
- Geosciences Field Camp Survey (2016)
 - Learned to identify geological structures and processes such as faults, dykes, fractures, rocks and minerals, in addition to weathering and erosion patterns across Alabama with Dr. James Tull and Dr. David Farris

ACADEMIC ACHIEVEMENTS

Publications in Print

- Magmatic evolution of Panama Canal volcanic rocks: A record of arc processes and tectonic change. Farris, D.W., Cardona, A., Montes, C., Foster, D. and Jaramillo, C. (2017). *PloS one*, 12(5), p.e0176010.

Publications in Progress

- Peat Carbon Losses Characterized in Salt Marsh Ecosystems using Infrared Spectroscopy. Alana B. Powell, Mackenzie Baysinger, Jeffrey P. Chanton. Smithsonian Environmental Research Center, Florida State University.

Symposium Presentations

- *Gravitational Density Mapping of the Pedro Miguel fault on the Panama Canal*, College of Arts and Sciences Undergraduate Research Symposium, Florida State University, May 2018

Public Demonstrations

- *Earth Day Science Fair*, Florida State University Coastal and Marine Laboratory, St. Teresa, FL. Apr 2017

Dean's Honor List

- Valencia College, Orlando, FL, Summer 2022

President's List

- Valencia College, Orlando, FL, Spring 2023, Summer 2023

COMMUNITY OUTREACH & MEMBERSHIPS

- *Steering Committee Member*, Ft. Lauderdale DSA Chapter (Policy Initiatives in Climate Change), 2020 – 2021
- *Lead Coordinator*, Fridays for Future (Political Action in Climate Change), Ft. Lauderdale, FL, 2019 – 2021
- *Organizer*, Sunrise Movement (Political Action in Climate Change), Atlanta, GA, 2020
- *Volunteer*, “Earth Day Science Fair” at the Florida State University Coastal and Marine Laboratory, 2017