ALEC GERARD BRAZEAU

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GitHub: https://github.com/albrazeau

PROFICIENCIES

- Customizable data analytics using scientific, statistical and geospatial Python packages.
- Purposeful collaboration through version control tools such as Git.
- Parallel cloud computing using Dask and PySpark on AWS EMR clusters and GCP Kubernetes clusters.
- PostgreSQL and PostGIS database management and usage.
- Geospatial analysis using desktop tools such as ArcGIS and QGIS.

PROFESSIONAL EXPERIENCE

Dewberry Engineering **Fairfax, VA**
Geospatial Programmer *January 2019 – Ongoing*

- Develop flexible, reproducible, modular and innovative software to extend the capabilities of Dewberry's geospatial and data analyses on datasets that require high CPU and RAM capacity.
- Use Open Science and Open Source Software to create tools that are both plug-and-play for general analysis and easily tailored for focused analysis.
- Perform large scale distributed analysis on terabytes of national level geospatial data using Dask and PySpark on Amazon Web Services (AWS) Elastic Map Reduce (EMR) clusters.
- Build a Python library to interface with the output of the National Water Model in order to allow state departments of transportation to forecast flooding events and direct resources accordingly.
- Analyze flood risk probabilistically using terabytes of water surface elevation data produced as a product of a Monte Carlo simulation.
- Lead the development of open-source Python tools and methodologies as a member of a niche "Innovations" group nested within the broader Geospatial Engineering and Applied Analytics team.

Resilience Planner *May 2018 – December 2018*

- Developed and managed a national database of building footprints using geospatial and statistical data analysis in Python. Extracted information from multiple terabytes of raster and vector data in order to create a database that can be utilized when examining natural hazard risk at a structural level.
- Conducted extensive literature review and analysis of policies of DC Department of Energy and Environment and created a Python-based tool that reads demographic data from Census Bureau's American Community Survey to evaluate the social and economic impact of green infrastructure across DC.
- Task managed a team of six cost-benefit analysts and provide subject matter expertise for 100+ monthly inquiries to the FEMA Benefit-Cost Helpline.
- Facilitated multiple week-long policy workshops and sprints for disaster and non-disaster grant mitigation programs for the FEMA Grants Policy Branch under the Mitigation Directorate.

The Nature Conservancy **Boulder, CO**
Carbon Sequestration in Colorado's Lands – Masters Capstone *December 2016 – December 2017*

- Developed the first state-wide carbon sequestration baseline assessment through an in depth geospatial/policy analysis.
- Implemented complex statistical methods including Markov Chains and Monte Carlo Simulations.
- Analyzed management scenarios across Colorado's ecosystems and their effects on carbon sequestration.
- Influenced the decision-making process and strategic direction of TNC's Colorado Chapter.
- Collaborated with TNC scientists and policy analysts full-time throughout the capstone project.

Report and Conference Presentation

Brazeau, A. G., Brandt, N. E., Browning, K. C., Meier, R. M. (2017). Carbon Sequestration in Colorado's Lands: An Integrated Spatial & Policy Analysis. University of Colorado Boulder. Full report available online.

American Geophysical Union 2017 Fall Meeting, Oral Presentation, December 11th – 15th

EDUCATION

University of Colorado, Boulder **Boulder, CO**
Masters of the Environment (MENV) – Environmental Policy and Management *December 2017*

University of Denver **Denver, CO**
Bachelor of Science in Environmental Science, Minor in Geology *June 2016*