

Broderik S. Craig

linkedin.com/in/broderik-s-craig – broderik.craig@utah.edu – (435) 496-9324

<http://BroderikSCraig.com>

Education

MS, Transportation Engineering

The University of Utah

April 2026

Salt Lake City, Utah

BS, Mathematics: Applied & Computational Mathematics Emphasis (ACME)

Brigham Young University

April 2023

Provo, Utah

- Undergraduate coding portfolio — <https://bitbucket.org/bcraig99/workspace/projects/>
- acme.byu.edu

Skills and Certifications

- Geospatial analysis, Geopandas, GIS
- Google Advanced Data Analytics Professional Certificate - June 29, 2023
- Python, Terminal, and R languages
- Machine Learning and Artificial Intelligence
- SQL, Pandas, and R data organization
- Data Visualization in Python and R
- Spanish proficient
- AutoCAD, SolidWorks
- BYU Department of Mathematics Recognition of Outstanding Performance in Mathematics
- Technical Communication

Relevant Work Experience

Graduate Research Assistant

U of U Department of Civil and Environmental Engineering

January 2024 - Present

Salt Lake City, UT

- Design computational models to maximize the environmental benefits of battery electric bus deployment in vulnerable communities while maximizing budget efficiency.
- Leverage Python's GeoPandas library to visualize and assess the environmental and health impacts of advanced pollution modeling (e.g., MOVES, InMAP, CEJST).
- Cooperate with stakeholders in the UTA to ensure realistic and feasible outcomes.
- Apply knowledge of transportation engineering, computational mathematics, and atmospheric sciences to solve complex interdisciplinary challenges.
- Prepare research findings for peer-reviewed journal submission, ensuring methodological rigor and clarity in presenting results.

Undergraduate Research Assistant

BYU Dept. of Mathematics, BYU Dept. of Political Science

May 2021 - April 2023

Provo, UT

- Employed GeoPandas and R to clean, process, and analyze election data, enhancing GIS-based data visualization and accessibility for research.
- Analyzed posterior distributions using Markov Chain Monte Carlo (MCMC) Metropolis-Hastings algorithms, uncovering insights into the relationship between compactness and partisan fairness in redistricting.
- Created innovative techniques for developing dynamic networks by specializing graph nodes and optimizing Python algorithms using parallelization to increase data collection efficiency.
- Collaborated with undergraduate and graduate researchers to coordinate efforts, identify bugs, and optimize code for seamless collaboration.
- Relevant Skills: Python, Geopandas, GIS, NetworkX, data cleaning, MCMC, Pandas, R, data visualization, algorithm optimization, mathematical programming.