

Broderik S. Craig

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Transportation engineer dedicated to public service, equity, and sustainable mobility. Brings expertise in quantitative analysis and data visualization, paired with strong communication and teamwork skills.

Work Experience

Transportation Engineer Intern

May 2025 – Present

Utah Department of Transportation: Transit Division

Taylorsville, UT

- Build dashboards and processed data for internal/external planning use.
- Perform multimodal network analysis to assess transit access and catchment impact.
- Develop and validate GIS tools for analyzing access to opportunity.
- Apply ArcGIS, Python, and SQL based workflows to support transit planning.

Graduate Research Assistant

January 2024 – May 2025

U of U Department of Civil and Environmental Engineering

Salt Lake City, UT

- Designed computational models to maximize the environmental benefits of battery electric bus deployment in vulnerable communities while maximizing budget efficiency.
- Modeled optimal battery-electric bus planning to maximize health and budget impact
- Visualized pollution exposure using GeoPandas, MOVES, InMAP, and CEJST data.
- Coordinated with UTA to ensure technical feasibility and stakeholder relevance.

Undergraduate Research Assistant

May 2021 - April 2023

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

Provo, UT

- Employed GeoPandas and R to clean, process, and analyze election data, enhancing GIS-based data visualization and accessibility for research.
- Processed election data and visualized GIS outputs using Python and R.
- Applied MCMC algorithms to analyze redistricting fairness.
- Optimized Python code for dynamic network modeling and collaboration.

Education

MS, Transportation Engineering

Expected December 2025

The University of Utah

Salt Lake City, Utah

- <https://broderikscraig.godaddysites.com/masters-thesis-draft>

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

April 2023

Brigham Young University

Provo, Utah

- acme.byu.edu

Skills and Certifications

- **Data Science & Programming**
Python • R • SQL • Jupyter • Terminal • Supercomputer-based Computing • Algorithm Design • Machine Learning • Data Wrangling • Statistical Analysis
- **Geospatial & Transportation Modeling**
ArcGIS Pro • ArcPy • GeoPandas • TransCAD • PTV Vissim • Multimodal Network Modeling • Accessibility & Equity Metrics • Atmospheric Chemistry Modeling (MOVES, InMAP, CEJST)
- **Visualization & Communication**
Data Visualization (Matplotlib, Seaborn, ggplot2) • Dashboard Development • Technical Writing & Communication • Public speaking & presentation