Brendan Murphy

Geospatial Data Engineer

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SUMMARY

• Geospatial Data Engineer with ten years experience in geospatial data
• Broad technical skillset spanning python programming, ELT and ETL data pipeline development and automation, SQL and database management, and statistical and mathematical modeling
• Published two first author and two coauthor papers in *Transportation Research Record*, *Journal of Transport and Land Use*, and *Accident Analysis and Prevention*
• Clear communicator and effective leader
• Passionate year-round cyclist and bicycle evangelist

EXPERIENCE

Data Engineer July 2022 – August 2024
UrbanFootprint, Berkeley, CA

- Designed and constructed two out of the three core Data Foundation pipelines upon which all data deliveries rely – Census ACS data, and parcel-level built environment and land-use data aggregation
- Major contributor to the Location Analysis Service, a flagship product used to aggregate Census, built-environment, and environmental hazard data to arbitrary geometries submitted by customers through UrbanFootprint's GIS web app
- Developed a packaging library used to prepare every single released data product for last-mile delivery
- Created new E-L and ELT ingest pipelines for a variety of foundational datasets at national scale, including FEMA NFHL flood data, Census ACS data, and Census TIGER data
- Built library of geospatial aggregation utilities used by the rest of the Data Science and Engineering (DSE) team and many data product pipelines
- Built and maintained libraries of custom utilities used by the DSE team and others, to increase workflow automation and efficiency

GIS Analyst III June 2021 - June 2022
Toole Design, Minneapolis, MN

- Lead Data Analyst and Project Manager for Ramsey County Bicycle and Pedestrian Performance Metrics project
- Lead Data Analyst for NCHRP 15-73: Design Options to Reduce Turning Motor Vehicle–Bicycle Conflicts at Controlled Intersections
- Frequently used cartography to communicate research and analysis findings
- Assisted in the development of the Safer Streets Priority Finder tool
- Performed multimodal crash analyses, transportation investment project prioritizations, and non-motorized count data analyses

Lead Researcher October 2015 - June 2021
Accessibility Observatory, University of Minnesota Center for Transportation Studies, Minneapolis, MN

- Developed software tools for production and analysis of national-scale geospatial and multimodal accessibility datasets
- Managed research group's computer equipment and software
- Communicated research findings through peer-reviewed articles and other publications; authored or co-authored four publications
- Team Lead; coordinated and advised graduate and undergraduate researchers in use of software tools
- Managed software backend and data products of the Observatory's National Accessibility Evaluation Pooled Fund – the research group's largest project
- Developed and maintained national Bicycle Level of Traffic Stress database based on OpenStreetMap

- Managed acquisition of GTFS feeds from transit operators nationwide
- Performed multimodal accessibility alternatives analyses for external clients; consulted clients on data interpretation and usage

Graduate Research Assistant June 2014 - October 2015
Accessibility Observatory, University of Minnesota Center for Transportation Studies, Minneapolis, MN

- Developed Python and PostgreSQL scripting tools to support the Observatory's National Accessibility Evaluation Pooled Fund project
- Performed crash frequency analysis and logistic regression modeling on pedestrian and bicycle safety data for the University's Roadway Safety Institute

EDUCATION

M.S. in Civil Engineering, Transportation 2015
University of Minnesota, Minneapolis, MN

- *Awards*: Roadway Safety Institute Student of the Year, 2016
- *Thesis:* Accessibility and Centrality Based Estimation of Pedestrian Activity and Safety in Urban Areas

B.S. in Mathematics, with Distinction 2011
University of Minnesota, Minneapolis, MN

- *Awards*: Dean's List

SKILLS

Programming

Python	★★★	Postgres/PostGIS	★★★	BigQuery	★★★		
Pandas/GeoPandas	★★★	GDAL/OGR	★★★	git	★★★		
Docker	★★☆	R	★★☆	bash	★★☆		
MATLAB	★★☆	LaTeX	★★☆	HTML	★★☆		
CSS	★★☆	JavaScript	★☆☆				

Software

Airflow	★★★	QGIS	★★★	ArcGIS	★★★		
OpenStreetMap	★★★	GCP	★★☆	AWS	★★☆		
Kubernetes	★★☆	MapBox	★★☆	JIRA	★★☆		

PUBLICATIONS

1. Brendan Murphy and Andrew Owen. Implementing Low-Stress Bicycle Routing in National Accessibility Evaluation. *Transportation Research Record*, 2673(5):240–249, 2019

2. Brendan Murphy and Andrew Owen. Temporal sampling and service frequency harmonics in transit accessibility evaluation. *Journal of Transport and Land Use*, 12(1):893–913, 2019

3. Kristin Carlson, Alireza Ermagun, Brendan Murphy, Andrew Owen, and David Levinson. Safety in Numbers for Bicyclists at Urban Intersections. *Transportation Research Record*, 2673(6):677–684, 2019

4. Brendan Murphy, David M. Levinson, and Andrew Owen. Evaluating the Safety In Numbers effect for pedestrians at urban intersections. *Accident Analysis and Prevention*, 106(May):181–190, 2017

HOBBIES

- Biking: year-round bike commuter; love to help others get started with bike commuting
- Music: play piano, drums and percussion, and live DJ
- Photography: landscape and nature photography, especially when traveling