# Brendan **Murphy**

Data Engineer · Transportation Engineer

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## **Exe**cutive Summary

- Data Science + Data Engineering and research professional with eight years experience in geospatial data

- Broad technical skillset spanning python programming, 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: consult clients and stakeholders on data and research methods; trained and onboarded undergraduate and graduate researchers; managed research group's largest project, the National Accessibility Evaluation

- Passionate year-round cyclist and bicycle evangelist

## **Exp**erience

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| **UrbanFootprint** | *Berkeley, CA* |
| Data Engineer | *July 2022 – Present* |

- Develop automated data pipelines in Python, Docker, and Google Cloud Composer to support UrbanFootprint's Data Platform and Data Products
- Support Data Science and Engineering team in development of standards in automation, tooling, and code documentation

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| **Toole Design** | *Minneapolis, MN* |
| GIS Analyst III | *June 2021 – June 2022* |

- 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

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| **Accessibility Observatory, University of Minnesota Center for Transportation Studies** | *Minneapolis, MN* |
| Lead Researcher | *Oct. 2015 - June 2021* |

- Developed software tools for production and analysis of large 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 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

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| **Accessibility Observatory, University of Minnesota Center for Transportation Studies** | *Minneapolis, MN* |
| Graduate Research Assistant | *June 2014 - Oct. 2015* |

- 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

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| **Code 42 Software** | *Minneapolis, MN* |
| Tier 1 Customer Champion | *Feb. 2014 - May 2014* |

- Provided technical support to consumer users of CrashPlan backup software

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| **Skyword** | *Boston, MA* |
| Technical Support Specialist | *Jan. 2013 - Sept. 2013* |

- Provided technical software platform support to Skyword staff and external end-users

**Residential Science Resources** <span style="color:red">*Eagan, MN*</span>

IT SPECIALIST; PLAN ANALYST *Apr. 2006 - Aug 2012; Jan. 2013 - Jan.*
*2014*

• Extracted data integral to estimated energy efficiency ratings from residential blueprint plans

**Lab of Prof. Netoff, Dept. of Biomedical Engineering, University of Minnesota** <span style="color:red">*Minneapolis, Minnesota*</span>

UNDERGRADUATE RESEARCH ASSISTANT *Apr. 2009 - Aug. 2012*

• Performed computer simulation modeling of deep brain stimulation and neural networks

## <span style="color:red">Edu</span>cation

**University of Minnesota** <span style="color:red">*Minneapolis, MN*</span>

M.S. IN CIVIL ENGINEERING, TRANSPORTATION *June 2014 - Oct. 2015*

• Roadway Safety Institute Student of the Year, 2016

**University of Minnesota** <span style="color:red">*Minneapolis, MN*</span>

B.S. IN MATHEMATICS, WITH DISTINCTION *Sept. 2007 - May 2011*

• Dean's List

## <span style="color:red">Ski</span>lls

**Programming** Python, LaTeX, git, R, Unix, Docker, PostgreSQL/PostGIS, MATLAB, HTML, CSS
**Software** QGIS, ArcGIS, MapBox, JIRA, AWS, GCP, Airflow, OpenStreetMap, JOSM

## <span style="color:red">Sel</span>ected 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

## <span style="color:red">Hob</span>bies and Interests

• Biking: year-round bike commuter; love to help others get started with bike commuting; Raced Powderhorn 24 in 2015 and 2016, placing 10th and 3rd

• Music: play piano, drums and percussion, and live DJ

• Photography: landscape and nature photography, especially when traveling

• Softball: play on the Metropolitan Council and Metro Transit (MCMT) Capitol Hill team