Susan (Su) Burtner

Santa Barbara, CA
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Education

PhD, Geography June 2022 (expected)

- University of California, Santa Barbara
- *Dissertation*: "Network and AI approaches for measuring spatial interaction and movement"

Master's, Urban Spatial Analytics 2015

- University of Pennsylvania
- *Concentration*: Transportation planning
- *Thesis*: "Using GIS to support in-flight operations in the event of an airport outage"

BA, Operations Research and Management Science 2014

- University of California, Berkeley

Research Interests

network science, spatial optimization, spatial data science, artificial intelligence, natural language processing, geographic information science, urban planning, health informatics, digital humanities

Research and Work Experience

Research Assistant June 2021 – December 2021

- P.I.: Professor Clayton Nall *University of California, Santa Barbara*
  - Replicate and improve imputations, geohashing, K-nearest neighbors, and exposure measures of partisan voting using big data storage and analysis techniques

Research Assistant September 2018 – December 2020

- What Every1 Says Project, P.I.: Professor Alan Liu *University of California, Santa Barbara*
  - Sponsor: Andrew W. Mellon Foundation
  - Analyzed topic models, created word embeddings, and generated visuals such as web maps and affiliation networks for hundreds of thousands of American media sources

Graduate Student Researcher June 2018 – September 2018

- Qatar Transportation Master Plan, GeoTrans Lab *University of California, Santa Barbara*
  - Compiled Qatar travel information together into individual travel logs, identified temporal gaps, and assisted in data preparation for agent-based modeling

Research Associate September 2015 – August 2017

- Oak Ridge National Laboratory *Knoxville, Tennessee*
  - Managed and populated a spatially enabled database of global building information, wrote technical documentation, and assisted in training machine learning models

Aviation Planning Intern June 2015 – September 2015

- AECOM *Philadelphia, Pennsylvania*
  - Analyzed runway / taxiway geometries for aircraft incursions, optimized airport passenger flow, and produced coverage analysis for Virginia State's Aviation System

Teaching Experience

Instructor

- University of California, Santa Barbara, Department of Geography
  - GEOG 172: Intermediate Geographic Information Analysis Summer 2020

Teaching Assistant

- University of California, Santa Barbara, Department of Geography
  - GEOG 500: Teaching Assistant Training (Department Lead TA) — Fall 2021
  - GEOG 190: Location Theory and Modeling — Spring 2021
  - GEOG 191: Intro. to Optimization Methods for Geographic Problems — Winter 2021
  - GEOG W12: Maps and Spatial Reasoning — Fall 2020
  - GEOG 109: Economic Geography — Spring 2020
  - GEOG 176B: Technical Issues in GIS — Winter 2020
  - GEOG 172: Intermediate Geographic Information Analysis — Fall 2019

Honors and Awards

2021	Excellence in Service Award, University of California, Santa Barbara, Department of Geography
2020	Graduate Student Minigrant, Multidisciplinary Research on COVID-19 and its Impacts, University of California, Santa Barbara
2019	Best Use of Google Cloud Platform, Womxn-Hacks, University of California, Santa Barbara
2017 – 2019	Network Science and Big Data Fellowship, University of California, Santa Barbara (Sponsor: National Science Foundation)
2018	Finalist, SAP and Esri Spatial Hackathon, Esri Developer Summit
2014 – 2015	Robert and Susan Heidenberg Scholarship, University of Pennsylvania
2014 – 2015	Frank H. and Eva B. Buck Foundation Scholarship, University of Pennsylvania

Publications

2021	Burtner, S. and A.T. Murray. "COVID-19 and minimizing micro-spatial interactions." *ACM Transactions on Spatial Algorithms and Systems* (forthcoming).
2021	Burtner, S. and A.T. Murray. "Urban mobility and segregation examined through networked travel activity." In *Handbook of Cities and Networks*. Edward Elgar Publishing.
2020	Murray, A.T., J. Xu, J. Baik, S. Burtner, S. Cho, E. Noi, B.A. Pludow, and E. Zhou. "Overview of contributions in Geographical Analysis: Waldo Tobler." *Geographical Analysis*. Volume 52, Issue 4: 480-493.

Presentations

Burtner, S. and A.T. Murray. "Spatial movement in natural language expressions." American Association of Geographers Annual Meeting (virtual), April 7-11, 2021.

Burtner, S. "Networks as tools for measuring interaction and complexity." Spatial Data Science Hangout (virtual), December 3, 2020.

Burtner, S. and A.T. Murray. "COVID-19 and minimizing spatial interactions in micro-spatial environments." Annual North American Meetings of the Regional Science Association International (virtual), November 9-13, 2020.

Burtner, S. and A.T. Murray. "Making the neighborhood: Using spatial clustering of travel activity to inform neighborhood delineations." Annual North American Meetings of the Regional Science Association International. Pittsburgh, Pennsylvania, November 13-16, 2019.

Burtner, S. "Improving harmonization of geographic data labels through word embeddings." American Association of Geographers Annual Meeting. New Orleans, Louisiana, April 10-15, 2018.

Burtner, S. "Generating building exterior wall material estimates using Google Street View imagery." American Association of Geographers Annual Meeting. Boston, Massachusetts, April 4-9, 2017.

Professional Affiliations

Association of American Geographers
North American Regional Science Council

Service

Department / University

- University of California, Santa Barbara, Department of Geography
  - Mentor, Graduate Peer Mentoring Program 2021 – 2022
  - Geography Equity, Diversity and Inclusion Working Group 2020 – 2022
  - Graduate Student Leader, Women in Geographical Sciences 2019 – 2021
  - Grad. Student Rep., Urban Inequality and Health Disparities Search Committee 2018 – 2019
- University of California, Santa Barbara
  - Mentor, Graduate Scholars Program 2021 – 2022
  - Placemaking Initiative 2020 – 2021

Community

- Mentor, Buck Scholars Association 2020 – 2022
- Mentor, Science Research Program, Laguna Blanca School 2019 – 2020

Journal Peer Review

Transactions in GIS
Applied Spatial Analysis and Policy

Technical Skills

Relevant Coursework

- *Mathematics and statistics*: Probability and Statistics, Spatial Statistics, Linear / Mathematical Programming, Data Mining
- *Data and spatial analysis*: Data Systems, Big Data Analytics, Geographic Information Systems, Spatial Analysis, Geospatial Software Design, Transportation Planning Methods
- *Other*: Network Science, Algorithmic Visualization, Computational Linguistics

Software

- *Programming*: R / RStudio, Python / Jupyter notebooks, SQL / PostgreSQL, MATLAB, Java
- *Mapping and visualization*: ArcGIS Pro, Leaflet, JavaScript / HTML / CSS
- *Other*: LaTeX, Markdown