Callie Clark

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NYU PhD candidate focused on large-scale mobility modeling, network science, and spatial data science. Designs end-to-end pipelines to translate human movement data into actionable insights for infrastructure, economic and community development, and public policy.

EDUCATION

New York University   Dec 2026 (expected)
PhD, Urban Systems (GPA: 3.85), Civil and Urban Engineering Department
Relevant Coursework: Causal Inference, Machine Learning for Cities, Optimization Methods, Complex Urban Systems

University of California, Berkeley   May 2021
Master of Science, Systems Engineering (GPA: 3.96), Civil and Environmental Engineering Department
Relevant Coursework: Data Science, Scalable Spatial Analytics, Behavior Modeling, Energy Systems and Control

University of California, Berkeley   May 2019
Bachelor of Science, Civil and Environmental Engineering (GPA: 3.73)
Relevant Coursework: Computer Programming, Data Science, Systems Analysis, Cyber-Physical Systems

SKILLS

Programming: Python (advanced; Pandas, GeoPandas, scikit-mobility, NetworkX, OSMnx), R
Machine Learning: Feature engineering, model evaluation, supervised learning
Data & Systems: Large-scale mobility data, geospatial pipelines, graph analytics, longitudinal data
Methods: Causal inference, optimization, complex systems, network science

SELECTED RESEARCH & ENGINEERING EXPERIENCE

Research Fellow - CUSP, New York University   Aug. 2024 - Present
- Lead end-to-end research lifecycles, including formulating novel research questions, designing methodologies, and supervising student researchers.
- Engineered high-dimensional features from city-scale individual mobility data to optimize model performance.
- Architected data pipelines integrating mobility patterns with ancillary behavioral datasets (SafeGraph POIs, Google Reviews, EV Charger locations, Census Data) to quantify large-scale shifts in human dynamics.

Research Fellow - Marron Institute, New York University   Jan. 2023 - Present
- Constructed 5-year longitudinal, directed mobility networks representing U.S. neighborhood connectivity, enabling temporal analysis of population dynamics at national scale.
- Proposed and validated network metrics to establish a novel neighborhood typology based on complex mobility patterns.

NSF Graduate Research Fellow – New York University   Jan. 2021- Dec 2022
- Developed a multidimensional access index to quantify NYC resource allocation needs.
- Architected a ML-driven data pipeline integrating OSMnx, GTFS, Google Distance-Matrix API, and Uber.
- Published findings, resulting in an invitation to discuss urban food policy with the NYC Mayor's Office.
- Collaborated with engineers and interdisciplinary researchers to design scalable data pipelines, using open-source methodologies.

Consulting Research Engineer - UC Berkeley   Jan. - Sept. 2022
- Secured $80,000 in funding by co-authoring a proposal focused on modeling equitable zero-emissions mobility.
- Optimized public EV charger placement by developing multi-objective metrics considering equity, economic impact, and environmental benefits.
- Managed technical project workflows, leading bi-weekly meetings and mentoring undergraduate researchers.

Associate Data Scientist - Lawrence Berkeley National Laboratory   June - Dec. 2019
Student Research Assistant - Lawrence Berkeley National Laboratory   Jan. 2018 - June 2019
- Built automated data pipelines in Python process real-time occupancy data for building energy optimization.
- Investigated Deep Reinforcement Learning (DRL) control algorithms to identify research gaps in autonomous building system management.

PUBLICATIONS (Urban Systems, Mobility, and Causal Inference)

M. Mavin De Silva, **Callie Clark**, Tadachika Nakayama, Takahiro Yabe. Causal spillover effects of electric vehicle charging station placement on local businesses: a staggered adoption study. [Under Review: https://arxiv.org/abs/2511.19507v1]

Clark, Callie, Christa Perfit, and Alice Reznickova. "A multi-dimensional access index: Exploring emergency food assistance in New York City." Health & Place 89 (2024): 103319

Clark, Callie, Chitra Dangwal, Dylan Kato, and Marta Gonzalez. "A network spatial analysis simulating response time to calls for service at variable staffing levels: A case study on strategic police defunding in the city of Chicago." The European Physical Journal Special Topics (2022): 1-9.

FELLOWSHIPS & AWARDS

National Science Foundation Graduate Research Fellow - Highly selective over 13,000 applicants   2020 - 2025
New York University Urban Doctoral Fellow- Competitive Cross-University Program   2023 -2024
ITS Berkeley Statewide Research Transportation Program Grant – Awarded $80,000 Project Budget 2021 – 2022
UC Berkeley Engineering Dean's Office Departmental Award – Awarded $5,000 Research Support   2018 -2019

TEACHING & MENTORSHIP

Graduate Student Fellow – NYU Office of Undergraduate Research   May – June 2025
- Mentored undergraduate researchers through the Summer Undergraduate Research Incubator (SURI), guiding students from conceptual research ideas to structured, data-driven methodologies.

Guest Lecturer – University of Colorado Boulder   April 2025
- Delivered an invited lecture on quantitative research methods to the Master's program in Environment and Sustainability; invited to return for the 2026 academic year.

Consulting Research Engineer – UC Berkeley   Jan. – Sept. 2022
- Mentored an undergraduate engineering researcher on modeling the environmental benefits of electric vehicle adoption, providing technical guidance and feedback on research design and analysis.

Design Assistant – T-PREP, UC Berkeley   July – Aug. 2020, 21
- Mentored engineering transfer students on systems-level problem solving, including cyber-physical system design and executive-level technical communication.

SELECTED PRESENTATIONS & INVITED TALKS

- International Research Footprint: Presented original urban dynamics and mobility research at premier global venues, including **Netmob 2025 (France),** the **Conference on Complex Systems (Italy**), and the **International Conference on Computational Social Science (Sweden).**
- Specialized Domain Expertise: presented original research on neighborhood connectivity networks as part of a multi-lab session on transit access and neighborhood change at **ACSP 2025 (Minneapolis)**.
- Policy Impact & Advocacy: Invited to discuss Food Policy with the **NYC Mayor's Office**, following presentation at the **International Conference on Urban Affairs (New York City, 2023)**.