Callie Clark

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EDUCATION

New York University May 2026 (expected)
PhD, Urban Systems (GPA: 3.87), Civil and Urban Engineering Department
Relevant Coursework: Machine Learning for Cities, Optimization Methods, Complex Urban Systems, Urban Informatics

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 Analysis, Applied Data Science, Systems Analysis, Cyber-Physical Systems

SKILLS

Coding Languages: Python (NetworkX, OSMnx, scikit-learn, TensorFlow, Geopandas), R
Professional Skills: Bartending (Customer Service, Communication, Problem-Solving, Time Management, Conflict Resolution)

RESEARCH and TEACHING EXPERIENCE

Research Assistant - CUSP, New York University Aug. 2024 - Present
- Engineered high-dimensional features from large-scale individual mobility data to optimize model performance.
- Built an ML pipeline using XGBoost to classify EV drivers, leveraging mobility patterns to generate data-driven insights.

Research Assistant - Marron Institute, New York University Jan. 2023 - Present
- Authored literature review analyzing segregation through the lens of mobility patterns and neighborhood dynamics.
- Constructed directed and weighted neighborhood connectivity networks across the entire U.S., for 5 years.
- Analyzed network metrics to determine if neighborhood mobility patterns can create a robust neighborhood typology.

Graduate Student Fellow – Office of Undergraduate Research, New York University May-June. 2025
- Mentored a cohort of students through Summer Undergraduate Research Incubator (SURI).
- Guided and instructed students in developing an original research proposal over the span of six weeks

Consulting Research Engineer - UC Berkeley Jan. - Sept. 2022
- Authored proposal and secured funding for a tool to model equitable electrification of zero-emissions mobility.
- Developed metrics to optimize public EV charger placement, considering equity, economic and environmental benefits.
- Led bi-weekly team project meetings, and managed an undergraduate engineering student in conducting research.

Transfer Pre-Engineering Program (T-PREP) Design Assistant- UC Berkeley July – Aug. 2020, 2021
- Mentored three teams of incoming Berkeley Engineering transfer students from underrepresented backgrounds
- Advised teams through all design stages, including identification of a societal scale problem, cyber-physical system solution design, and pitch development

Associate Data Scientist - Lawrence Berkeley National Laboratory June - Dec. 2019
Student Research Assistant - Lawrence Berkeley National Laboratory Jan. 2018 - June 2019
- Built data pipelines using Python to clean real-time occupancy data and optimize building energy use.
- Conducted literature review to identify gaps in Deep Reinforcement Learning control algorithms for building systems.

PROJECTS

Emergency Food Access Index - City Harvest Jan. 2023 - June 2024
- Developed a multidimensional Emergency Food Access Index to quantify need for resource allocation.
- Simulated travel time using multiple data sources (OsmnX, GTFS, Google Distance-Matrix API, Uber) and ML methods.

- Published paper in *Health & Place*, leading to an invitation from NYC Mayor's Office of Food Policy to discuss findings.

Network Simulation of Police Response Time Under Variable Staffing Levels Fall 2020

- Led development of a Python-based Network Analysis to assess police staffing impact on response time.
- Collaborated with domain experts to develop a robust model, publishing findings in the *European Physics Journal*.

PUBLICATIONS

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

To apply, please submit a cover letter explaining your interest (and, if applicable, any experience you have) in mentoring undergraduates in research. Please describe research areas you are interested in. We assume that you have a primary topic around which you are building your dissertation, but we welcome descriptions of other research interests as well so long as you feel comfortable mentoring undergraduates interested in those topics. Please describe methods you are comfortable mentoring undergraduates in using. Undergraduate applicants to the SURI will express interest in particular mentor's research areas.

Hello-

I am excited to apply to be a Graduate Student Fellow for the Summer Undergraduate Research Incubator (SURI). I first heard about this program through Ethan Youngerman when I was leading a session at the Undergraduate methods week through the Marron Institute. I was impressed by the student engagement, and Ethan mentioned this positions as I have been actively trying to get more experience mentoring students while I consider pursuing a degree in academia.

One of my main projects during the first two years of my PhD explores emergency food access in New York City. I partnered with a food systems expert, Dr. Alice Reznickova, and Christa Perfit at City Harvest and we designed a project that applied quantitative methods to the primarily qualitative domain of food access. Through this process I have learned so much about structuring a research question and … This is the projct I presented in the undergraduate methods week and there was widespread engagement form the students across different majors.

My research area broadly focuses on using human mobility data to understand access to public infrastructure and social capital. My methodological expertise includes optimization, complex systems, data science, ML and network science. My domain knowledge is more broad with research topics ranging from neighborhood dynamics, Electric vehicle infrastructure, and emergency food access.

My main experience mentoring undergraduate students was during my time as a graduate student at UC Berkeley. I served as a mentor for undergraduate engineering students as they went through the process of creating a research question and designing a project. I worked in this role for two summers, with 13 different undergraduate students. I learned how to help students first ask questions with impact and then figure out how to approach the question. .. During my first year as a PhD student at NYU I mentored an undergraduate student on my EEZ project. I created a sub question in the research project and mentored him wit hweekly meetings, resulting in a contribution to the overall model. Lastly, I am currently managing a masters student on my current research project.