Joshua H. Davidson

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ACADEMIC POSITION

Assistant Professor of Data Science and Computer Science   2023 –
Oberlin College

EDUCATION

Ph.D. City and Regional Planning   2023
University of Pennsylvania
Dissertation: *Linking quasi-experiments with spatial approaches for equity-oriented transportation models: Applications to bikeshare in the Covid-19 period*

Master of City Planning   2017
University of Pennsylvania
Thesis: *More than spatial mismatch: Uneven development and the reverse commute*

Bachelor of Arts in English, with Honors   2012
Oberlin College

PEER-REVIEWED PUBLICATIONS
[†]*denotes undergraduate co-author;* [*]*denotes shared first authorship*

Davidson, J., Nam, S., Karam, S., and Ryerson, M. (2025). "Cycling in a Crisis: Employing Quasi-Experimental Designs to Estimate the Effects of Provisional Bicycle Infrastructure." *Journal of Planning Education and Research* (April). https://doi.org/10.1177/0739456X251330590.

Paul, J., and **Davidson, J.** (2025). "Is This Your First Time Here? Older Adults and Mode-Switching on a New Local Bus Route in Philadelphia." *Transportation Research Record,* April,. https://doi.org/10.1177/03611981251331012.

Raychaudhuri, T., **Davidson, J.**, and Jones-Correa, M. (2024). "Shared Space and Civic Engagement: Block Parties and Voter Turnout in Philadelphia." *Urban Affairs Review* (August). https://doi.org/10.1177/10780874241270041.

Davidson. J. (2023). "A Socio-Spatial Approach to Define Priority Areas for Bicycle Facilities Using Covid-19 Data," *Sustainable Cities and Society* 99 (December). https://doi.org/10.1016/j.scs.2023.104883.

Davidson, J.[*], Feiglin, I.[*], and Ryerson, M. (2023). "A One-seat Ride Coverage Ratio Using Administrative Origin Destination Data" *Findings* (January). https://doi.org/10.32866/001c.57771.

Ryerson, M., **Davidson, J.**, Wu, J. S., Feiglin, I., and Winston, F. (2022). "Identifying Community-Level Disparities in Access to Driver Education and Training: Toward a Definition of Driver Training Deserts." *Traffic Injury Prevention* (October). https://doi.org/10.1080/15389588.2022.2125305.

Ryerson, M.., **Davidson. J**, Csere, M**.,** Kennedy, E., & Reina, V. (2022). "Toward Equity-Driven Planning Typologies: Using Accessibility and Individual Constraints to Guide Transportation Investments," *Transportation Research Part D: Transport and Environment* 109 (August). https://doi.org/10.1016/j.trd.2022.103378.

Davidson, J., Nam, S.†, Karam, S.†, Karoma, F.†, Kim, E.†, and Ryerson, M. (2022). "New Equity Inputs to Prioritize Bikeshare Infrastructure Allocation: Learning from the COVID-19 Period," *Transportation Research Record: Journal of the Transportation Research Board* (June). https://doi.org/10.1177/03611981221098390.

Davidson, J., Lee, S.†, Kim, E.†, Nam, S.†, and Ryerson, M. (2022). "New Route, New Faces?: Measuring Changes in the Exposure to Diversity on Transit using Social Interaction Potential," *Journal of Transport & Health* 24 (March). https://doi.org/10.1016/j.jth.2022.101336.

Davidson, J., Feiglin, I., and Ryerson, M. (2021). "Spatially-Oriented Data, Methods, and Models to Plan Transit for Reverse Commuters." *Transportation Research Part D: Transport and Environment* 100 (November). https://doi.org/10.1016/j.trd.2021.103051.

Davidson, J., and Ryerson, M. (2021). "Modeling Regional Disparity and the Reverse Commute." *Transportation Research Part A: Policy and Practice* 150 (August): 124–39. https://doi.org/10.1016/j.tra.2021.06.005.

Ryerson, M.., Long, C., Fichman, M**., Davidson, J.**, Scudder, K., Kim, M., Katti, R., Poon, G., & Harris, M. (2021). "Evaluating cyclist biometrics to develop urban transportation safety metrics." *Accident Analysis & Prevention* 159. https://doi.org/10.1016/j.aap.2021.106287.

Davidson, J. and Ryerson, M. (2018). "Building Reverse Commute Typologies Through Urban and Suburban Socioeconomic Characteristics," *Cities* 81 (November): 180-89. https://doi.org/10.1016/j.cities.2018.04.007.

Lee, S.*, **Davidson. J**.*, and Ryerson, M. (*in revision*). "Navigating transit spaces: An assemblage approach to daily travel," *Applied Mobilities*.

CONFERENCE PRESENTATIONS
†*denotes undergraduate co-author,* ‡*denotes Oberlin College undergraduate co-author,* **denotes shared first authorship*

Davidson, J., Elazar, N. ‡, Ramanuj, S. ‡, and Ryerson, M. (2025, March). *Socio-spatial Disparities in Access to Driver Education for Teens.* American Association of Geographers, Annual Meeting, Detroit, Michigan.

Lee, S.*, **Davidson, J.***, and Ryerson, M. (2025, January). *Navigating Transit Spaces: An Assemblage Approach to Daily Travel.* Transportation Research Board, Annual Meeting, Washington, D.C.

Paul, J. and **Davidson. J**. (2025, January). *Is this your first time here? Older adults and mode-switching on a new local bus route in Philadelphia.* Transportation Research Board, Annual Meeting, Washington, D.C.

Davidson, J., Nam, S.[†], Karam, S.[†], and Ryerson, M. (2024, January). *Cycling in a crisis: Employing Quasi-experimental Designs to Estimate the Effects of Provisional Bicycle Infrastructure.* Transportation Research Board, Annual Meeting, Washington, D.C.

Davidson, J., Elazar, N.[‡], Ungar, S.[‡], and Ryerson, M. (2023, November). *Empirically Measuring the Mobility Outcomes of New Equity-oriented Transit.* East Lakes Division of the American Association of Geographers, Annual Meeting, Oregon, Ohio.

Davidson, J., Nam, S.[†], Karam, S.[†], and Ryerson, M. (2023, March). *Pop-up Infrastructure's Impact on Bikeshare Use: A Quasi-Experimental Approach.* American Association of Geographers, Annual Meeting, Denver, Colorado.

Davidson, J., Reina, V. and Fowle, M. (2023, February). *Claiming the Prize After Winning the Housing Lottery: How Do Housing Authorities' Administrative Processes Affect Who Redeems a Housing Voucher?.* American Society for Public Administration, Annual Conference, Virtual.

Davidson, J. (2023, January). *A Socio-Spatial Approach to Define Priority Areas for Bicycle Facilities Using Covid-19 Data.* Transportation Research Board, Annual Meeting, Washington, D.C.

Ryerson, M.., **Davidson. J**, Wu, S., Feiglin, I., and Winston, F. (2022, October). *Identifying Community-Level Disparities in Access to Drivers Education and Training: Toward a Definition of Driver Training Deserts.* Association for the Advancement of Automotive Medicine, Annual Scientific Conference, Portland, OR.

Davidson, J. (2022, February). *Measuring Changes in Bike Share Use: A Raster-Based, Open-Sourced, and Open-Data Approach.* American Association of Geographers, Annual Meeting, Virtual.

Lee, S., **Davidson, J.**, and Ryerson, M. (2022, February). *Navigating Transit Spaces: An Assemblage Approach to Daily Travel.* American Association of Geographers, Annual Meeting, Virtual.

Davidson, J., Nam, S.[†], Karam, S.[†], Karoma, F.[†], Kim, E.[†], and Ryerson, M. (2022, January). *The Effect of Covid-19 on Bike Share Trip Durations in Diverse Geographies.* Transportation Research Board, Annual Meeting, Washington, D.C.

Davidson, J. (2021, October). *Commute Knowledge: How Transit Users Learn and Alter Travel Patterns.* Association of Collegiate Schools of Planning, Annual Conference, Virtual.

Jones-Correa, M., Raychaudhuri, T., and **Davidson, J.** (2021, September). *Shared Space, Social Capital and Voter Turnout: Block Parties in Philadelphia.* American Political Science Association, Annual Meeting, Seattle, Washington.

Davidson, J. (2021, April). *Cycling in a Crisis: Using Disaggregated Bike-share Data to Measure Changes in the Spatial Propensity to Cycle During the COVID-19 Pandemic.* American Association of Geographers, Annual Meeting, Virtual.

Davidson, J. (2021, January). *Commute Knowledge: How Transit Users Learn and Alter Travel Patterns.* Transportation Research Board, Annual Meeting, Virtual.

Davidson, J., Lee, S.[†], Kim, E.[†], Nam, S.[†], Ryerson, M. (2020, November). *Exposure to Diversity on Transit: An Individual-Level Approach using Social Interaction Potential.* Association of Collegiate Schools of Planning, Annual Conference, Virtual.

Reina, V. and **Davidson, J.** (2020, November). *Housing Choice Vouchers: A Long Road to an Uncertain Outcome.* Association of Collegiate Schools of Planning, Annual Conference, Virtual.

Reina, V. and **Davidson, J.** (2020, June). *Housing Choice Vouchers: A Long Road to an Uncertain Outcome.* Institute for Research on Poverty, Summer Workshop, Madison, Wisconsin. (conference canceled due to COVID-19 Pandemic).

Davidson, J. (2020, April). *Commute Change: How Transit Users Learn about and Alter Travel Patterns.* Urban Affairs Association, Annual Conference, Washington, D.C. (conference canceled due to COVID-19 Pandemic).

Jones-Correa, M. and **Davidson, J.** (2019, August). *The Spatial Contexts of Civic Engagement.* American Political Science Association, Annual Meeting, Washington, D.C.

Davidson, J. (2019, April). *Testing for Exceptional Concentrations in the Spatial Patterns of Commuters.* American Association of Geographers, Annual Meeting, Washington, D.C.

Davidson, J. and Ryerson, M. (2018, October). *Modeling the Reverse Commute within Socio-Demographically Defined Commute Typologies.* Association of Collegiate Schools of Planning, Annual Conference, Buffalo, New York.

Davidson, J. (2017, April). *Cell Sized Society: Using Raster Data and Rapid Computation to Investigate Social Problems Across Space.* The Poetics of Mapping: Representing the Built Environment, University of Pennsylvania, Philadelphia, Pennsylvania.

Davidson, J. (2017, March). *More than Spatial Mismatch: Uneven Development and the Reverse Commute.* State and Local Economic Development Graduate Student Conference, Rutgers University, Camden, New Jersey.

Davidson, J. (2016, October). *Land Bank Interventions to Promote Age-Diverse Housing in Philadelphia.* Community Development Graduate Research Forum, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania.

Davidson, J. and Kirschen, M. (2016, October). *Problems in Predicting Philadelphia's Land Vacancy.* Community Development Graduate Research Forum, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania.

INVITED TALKS

†*denotes undergraduate co-author,* ‡*denotes Oberlin College undergraduate co-author*

Davidson, J. (2025, October). *Navigating the Complex Dynamics of Accessibility, Safety, and Mobility for Vulnerable Road Users.* Roundtable session, Association of Collegiate Schools of Planning, Annual Meeting, Minneapolis, MN.

Davidson, J. (2025, October). *Preparing for the Academic Job Market.* Roundtable session, Association of Collegiate Schools of Planning, Annual Meeting, Minneapolis, MN.

Davidson, J., Elazar, N. [‡], Ramanuj, S. [‡], and Ryerson, M. (2025, March). *Socio-spatial Disparities in Access to Driver Education for Teens.* Computer Science Department, Oberlin College.

Davidson, J. (2024, July). *Planning and Structuring an Effective Quantitative Presentation.* Oberlin Summer Research Institute, Oberlin College.

Davidson, J., Elazar, N. [‡], Ungar, S. [‡], and Ryerson, M. (2024, April). *Empirically Measuring the Mobility Outcomes of New Equity-Oriented Transit.* Computer Science Department, Oberlin College.

Davidson, J. (2024, April). *Equity-Oriented Transportation Models.* Data Analytics Program, Denison University. Virtual.

Davidson, J. (2022, December). *Community Engaged Research.* Gertrude B. Lemle Teaching Center, Oberlin College.

Davidson, J. (2022, February). *Measuring Changes in Bike Share Use: A Raster-Based, Open-Sourced, and Open-Data Approach.* Cooperative Mobilities for Competitive Megaregions University Transportation Center, The University of Texas at Austin. Virtual.

Davidson, J., Nam, S. [†], Karam, S. [†], Karoma, F. [†], Kim, E. [†] , and Ryerson, M. (2022, January). *The Effect of Covid-19 on Bike Share Trip Durations in Diverse Geographies.* Bicycle Transportation Committee Meeting (ACH20), Transportation Research Board, Annual Meeting, Washington, D.C.

TECHNICAL REPORTS AND NON PEER-REVIEWED PUBLICATIONS

Paul, J., and **Davidson, J.** (2025, June). "How a new bus line in Philadelphia is defying post-pandemic transit trends." *The Conversation.* https://theconversation.com/how-a-new-bus-line-in-philadelphia-is-defying-post-pandemic-transit-trends-256064.

Davidson, J. and Ryerson, M. (2022, October). *Opportunities to Equitably Expand Bikeshare: Learning from the Covid-19 Period*, Kleinman Center for Energy Policy, University of Pennsylvania. https://kleinmanenergy.upenn.edu/research/publications/opportunities-to-equitably-expand-bikeshare-learning-from-the-covid-19-period/.

Ryerson, M., Long, C., **Davidson, J.,** and Boggan, C. (2021). "New Rules for Old Roads: Updated safety methodologies can protect cyclists, walkers, and scooter riders on urban streets designed for cars," *Issues in Science and Technology* 37, 2 (Winter): 26-30.

Davidson, J. (2018, July). "Graffiti In The Woods: Searching For Definitions of Jewish Space," *Full Stop Quarterly* 8: 43-56.

Davidson, J. (2016, December). "Affirmatively Furthering Fair Housing," *Mapchats Blog*, PolicyMap, https://www.policymap.com/2016/12/affirmatively-furthering-fair-housing/.

Davidson, J. (2016, June). "Looking for Patterns in Hearing Disability Data," *Mapchats Blog*, PolicyMap, https://www.policymap.com/2016/06/looking-patterns-hearing-disability-data/.

Davidson, J. (2016, Spring). "A preliminary plan for land bank interventions to promote age-diverse housing in Philadelphia, PA," *Panorama* 24: 126-35.

TEACHING EXPERIENCE

Instructor of Record, *Oberlin College*
"Data Computing and Visualization" (2024, Fall, Spring), Mathematics Department, Undergraduate Course.

"Introduction to Statistics" (2023, Fall; 2024, Fall, Spring), Mathematics Department, Undergraduate Course.

"Introduction to Data Science" (2023, Fall, Spring; 2024, Fall; 2025, Fall - two sections, Spring), Data Science Program and Computer Science Department, Undergraduate Course.

"Space, Place, and Transportation Justice" (2022, Fall), First Year Seminar Program, Undergraduate Course.

"Introduction to R Programing" (2020, Fall), Junior Practicum, Undergraduate Course.

Instructor of Record, *University of Pennsylvania*
"Transport Justice" (2021, Fall; 2020, Fall), Department of City and Regional Planning, Graduate/Undergraduate Course.

Graduate Teaching Assistant, *University of Pennsylvania*
"Planning by Numbers" (2021, Spring; 2020, Spring; 2019, Spring) with Dr. Megan Ryerson, Department of City and Regional Planning, Graduate Course.

"Transportation Planning Methods" (2018, Fall) with Dr. Megan Ryerson, Department of City and Regional Planning, Graduate Course.

"The Transformation of Urban America" (2017, Spring) with Dr. Howard Gillette, Urban Studies Department, Undergraduate Course.

"Geographic Information Systems Applications in Social Science" (2016, Fall) with Dr. Amy Hillier, Urban Studies Department, Graduate/Undergraduate Course.

PROFESSIONAL SERVICE

Editorial Board
Rust Belt Studies (2023-)

Conference Session Organizer
2025, March. *Transport Justice Series, Sessions 1-12*. American Association of Geographers, Annual Meeting, Detroit, MI.

2024, April. *Transport Justice Series, Sessions 1-7*. American Association of Geographers, Annual Meeting, Honolulu, HI.

2023, March. *Transport Justice Series, Sessions 1-13*. American Association of Geographers, Annual Meeting, Denver, CO.

2022, February. *Transport Justice Series, Sessions 1-5*. American Association of Geographers, Annual Meeting, Virtual.

2021, April. *Transport Justice Series, Sessions 1-3*. American Association of Geographers, Annual Meeting, Virtual.

Paper Reviews
2025. *npj Sustainable Mobility and Transport* (2), *International Journal of Sustainable Transportation* (1), *Journal of Transport Geography* (1)

2024. *Discover Cities* (1), Transportation Research Board (1), *International Journal of Sustainable Transportation* (1), *npj Sustainable Mobility and Transport* (1), *American Planning Association Planning Advisory Series Report for Environmental Justice and Zoning* (technical review of statistical methodology and code)

2023. *Planning Practice and Research* (1), Transportation Research Board (3), *Journal of Transport Geography* (1), *Transportation Research Part D: Transport and Environment* (2)

2022. *Transportation Research Record* (1)

2021. Transportation Research Board (2)*, Journal of Planning Education and Research* (1)*, Transportation Research Record* (2)*, Transportation Research Part D: Transport and Environment* (1)*,* World Society for Transportation and Land Use Research (1)*, University of Pennsylvania Law Review* (1)

2020. *Transportation Research Record* (1)

INSTITUTIONAL SERVICE

At Oberlin College
Environmental Sustainability Committee   2024-

Integrative Concentration Committee   2024-

Statistical Modelling Committee	2024-
Data Science Major Design Ad-hoc Committee	2024-
Hiring Committee, Data Science Program	2024-
Hiring Committee, Computer Science Department	2023-2024

UNDERGRADUATE RESEARCHERS

At Oberlin College
2023. Noah Elazar (Computer Science and Political Science), Sophia Ungar (Computer Science), Sangeetha Ramanuj (Math and Computer Science)

2024. Noah Elazar (Computer Science and Political Science), Sangeetha Ramanuj (Mathematics and Computer Science), Adrien Stratis (Environmental Studies), Moe Ariyoshi (Computer Science), Sydney Haddad (Undeclared), Reefayat Bin Shajahan (Physics and Mathematics), Aahil Singh (Mathematics and Economics), Jack Page (Mathematics)

2025. Noah Elazar (Computer Science and Political Science), Sangeetha Ramanuj (Mathematics and Computer Science), Adrien Stratis (Environmental Studies), Sydney Haddad (Undeclared), Reefayat Bin Shajahan (Physics and Mathematics), Aahil Singh (Mathematics and Economics), Jess Nadler (Geoscience and Psychology), Emmy Saarnio (Mathematics), Sydney Paunan (Environmental Studies)

GRANTS, FELLOWSHIPS, AND AWARDS

"Stress Testing and Hardening the National Airspace System for Safe, Efficient, and Resilient Growth" (subaward), *NASA* ($15,000)   2024-2025

Oberlin Summer Undergraduate Research Fellowship, *Oberlin College* ($7,500)   2024

Bonner Center Faculty Research Support, *Oberlin College* ($11,000)   2024

Student Assistantship Grant, *Oberlin College* ($17,500)   2023-2026

Curriculum Development Grant – Object Based Teaching, *Oberlin College* ($200)   2023

ICPSR Seat, *Michigan Fed. Statistical Research Data Center* ($5,000)   2022-2023

Provost's Graduate Academic Engagement Fellowship, *Univ. of Penn.* ($45,000)   2021 – 2023

Center for Economic Studies Dissertation Mentorship Program, *U.S. Census Bur.*   2021 – 2023

Kleinman Center for Energy Policy Research Grant, *Univ. of Penn.* ($15,000)   2021 – 2022

Dwight D. Eisenhower Transportation Fellowship, *Fed. Highway Admin.* ($20,000)   2020 – 2023

University Transportation Center Student of the Year (CM^2), *U.S. DOT* ($1,500)   2021

Shah Engaged Research Internship, *Univ. of Penn.* ($3,000)   2020

Dorot Fellowship, *Dorot Foundation* ($40,000)   2017 – 2018

Paul A. Davidoff Award, *Univ. of Penn.* ($750)   2017

Charles Abrams Scholarship, *American Planning Association* ($2,000)   2016