

Center for Open Geographical Science
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ELIJAH KNAAP

academic appointments

<i>San Diego State University</i>		
Center for Open Geographical Science	Senior Research Scientist & Assoc. Director	2022 – Present
School of Public Affairs	Volunteer Faculty	2022 – Present
<i>University of California-Riverside</i>		
Center for Geospatial Sciences	Senior Research Scientist & Assoc. Director	2019 – 2022
School of Public Policy	Adjunct Professor	2021
School of Public Policy	Postdoctoral Scholar	2018 – 2019
<i>University of Illinois at Chicago</i>		
Urban Planning and Policy	Visiting Assistant Professor	2017 – 2018
<i>University of Maryland</i>		
School of Information Studies	Adjunct Professor	2016 – 2017
Dept. Urban Studies and Planning	Adjunct Professor	2016 – 2017

editorial appointments

<i>Growth and Change: A Journal of Urban and Regional Policy</i>		
Editorial Board		2022 – Present

education

<i>University of Maryland</i>		
Ph.D. – Urban and Regional Planning & Design		2016
M.A. – Community Planning		2013
B.A. – Sociology		2011

publications

Refereed Articles

Wei, Ran, **Knaap, Elijah**, and Rey, Sergio. 2023. American Community Survey (ACS) Data Uncertainty and the Analysis of Segregation Dynamics. *Population Research and Policy Review* 42(1), 5. DOI: [10.1007/s11113-023-09754-6](https://doi.org/10.1007/s11113-023-09754-6).

Wei, Ran, Feng, Xin, Rey, Sergio, and **Knaap, Elijah**. 2022a. Reducing Racial Segregation of Public School Districts. *Socio-Economic Planning Sciences*, 101415. DOI: [10.1016/j.seps.2022.101415](https://doi.org/10.1016/j.seps.2022.101415).

Rey, Sergio and **Knaap, Elijah**. 2022c. The Legacy of Redlining: A Spatial Dynamics Perspective. *International Regional Science Review* 0(0). DOI: [10.1177/01600176221116566](https://doi.org/10.1177/01600176221116566).

Kang, Wei, **Knaap, Elijah**, and Rey, Sergio. 2021a. Changes in the Economic Status of Neighbourhoods in US Metropolitan Areas from 1980 to 2010: Stability, Growth and Polarisation. *Urban Studies*, 004209802110425. DOI: [10.1177/00420980211042549](https://doi.org/10.1177/00420980211042549).

- Feng, Xin, Barcelos, Germano, Gaboardi, James D, Wei, Ran, Wolf, Levi J., Zhao, Qunshan, Rey, Sergio J., **Knaap, Elijah**, Wei, Ran, Wolf, Levi J., Zhao, Qunshan, and Rey, Sergio J. 2021d. Spopt: A Python Package for Solving Spatial Optimization Problems in PySAL. *Journal of Open Source Software* 7(74), 1–7. DOI: [10.21105/joss.03330](https://doi.org/10.21105/joss.03330).
- Rey, Sergio J., Anselin, Luc, Amaral, Pedro, Arribas-Bel, Dani, Cortes, Renan Xavier, Gaboardi, James David, Kang, Wei, **Knaap, Elijah**, Li, Ziqi, Lumnitz, Stefanie, Oshan, Taylor M., Shao, Hu, and Wolf, Levi John. 2021e. The PySAL Ecosystem: Philosophy and Implementation. *Geographical Analysis*, gean.12276. DOI: [10.1111/gean.12276](https://doi.org/10.1111/gean.12276).
- Wei, Ran, Rey, Sergio, and **Knaap, Elijah**. 2021c. Efficient Regionalization for Spatially Explicit Neighborhood Delineation. *International Journal of Geographical Information Science* 35(1), 135–151. DOI: [10.1080/13658816.2020.1759806](https://doi.org/10.1080/13658816.2020.1759806).
- Rey, Sergio Joseph, Cortes, Renan, and **Knaap, Elijah**. 2021b. Comparative Spatial Segregation Analytics. *Spatial Demography* (January), 1–34. DOI: [10.1007/s40980-021-00075-w](https://doi.org/10.1007/s40980-021-00075-w).
- Kang, Wei, Rey, Sergio, Wolf, Levi, **Knaap, Elijah**, and Han, Su. 2020e. Sensitivity of Sequence Methods in the Study of Neighborhood Change in the United States. *Computers, Environment and Urban Systems* 81, 101480. DOI: [10.1016/j.compenvurbsys.2020.101480](https://doi.org/10.1016/j.compenvurbsys.2020.101480).
- Cortes, Renan Xavier, Rey, Sergio, **Knaap, Elijah**, and Wolf, Levi John. 2020b. An Open-Source Framework for Non-Spatial and Spatial Segregation Measures: The PySAL Segregation Module. *Journal of Computational Social Science* 3(1), 135–166. DOI: [10.1007/s42001-019-00059-3](https://doi.org/10.1007/s42001-019-00059-3).
- Han, Su, Rey, Sergio, **Knaap, Elijah**, Kang, Wei, and Wolf, Levi John. 2019a. Adaptive Choropleth Mapper: An Open-Source Web-Based Tool for Synchronous Exploration of Multiple Variables at Multiple Spatial Extents. *ISPRS International Journal of Geo-Information* 8(11), 509. DOI: [10.3390/ijgi8110509](https://doi.org/10.3390/ijgi8110509).
- Lung-Amam, Willow, Pendall, Rolf, and **Knaap, Elijah**. 2019g. Mi Casa No Es Su Casa : The Fight for Equitable Transit-Oriented Development in an Inner-Ring Suburb. *Journal of Planning Education and Research* 39(4), 442–455. DOI: [10.1177/0739456X19878248](https://doi.org/10.1177/0739456X19878248).
- Wolf, Levi John, **Knaap, Elijah**, and Rey, Sergio. 2019c. Geosilhouettes: Geographical Measures of Cluster Fit. *Environment and Planning B: Urban Analytics and City Science*. DOI: [10.1177/2399808319875752](https://doi.org/10.1177/2399808319875752).
- Wadsworth, Sally J., Corley, Robin P., Munoz, Elizabeth, Trubenstein, Paige, **Knaap, Elijah**, Defries, John C., Plomin, Robert, and Reynolds, Chandra A. 2019b. CATSLife: A Study of Lifespan Behavioral Development and Cognitive Functioning. *Twin Research and Human Genetics* 22(6), 829–829. DOI: [10.1017/thg.2019.126](https://doi.org/10.1017/thg.2019.126).
- Han, Su Yeon, Tsou, Ming-hsiang, **Knaap, Elijah**, Rey, Sergio, and Cao, Guofeng. 2019e. How Do Cities Flow in an Emergency? Tracing Human Mobility Patterns during a Natural Disaster with Big Data and Geospatial Data Science. *Urban Science* 3(2), 51. DOI: [10.3390/urbansci3020051](https://doi.org/10.3390/urbansci3020051).

- Finio, Nicholas, Lung-Amam, Willow, Knaap, Gerrit-Jan, Dawkins, Casey, and **Knaap, Elijah**. 2019f. Metropolitan Planning in a Vacuum: Lessons on Regional Equity Planning from Baltimore's Sustainable Communities Initiative. *Journal of Urban Affairs*, 1–19. DOI: [10.1080/07352166.2019.1565822](https://doi.org/10.1080/07352166.2019.1565822).
- Lung-Amam, Willow S., **Knaap, Elijah**, Dawkins, Casey, and Knaap, Gerrit-Jan. 2018a. Opportunity for Whom? The Diverse Definitions of Neighborhood Opportunity in Baltimore. *City & Community* 17(3), 636–657. DOI: [10.1111/cico.12318](https://doi.org/10.1111/cico.12318).
- Rey, Sergio, **Knaap, Elijah**, Han, Su, Wolf, Levi, and Kang, Wei. 2018b. Spatio-Temporal Analysis of Socioeconomic Neighborhoods: The Open Source Longitudinal Neighborhood Analysis Package (OSLNAP). in: *Proceedings of the 16th Python in Science Conference*. SciPy, pp.121–128. DOI: [10.25080/majora-4af1f417-012](https://doi.org/10.25080/majora-4af1f417-012). https://conference.scipy.org/proceedings/scipy2018/serge_rey.html.
- Knaap, Elijah**. 2017. The Cartography of Opportunity: Spatial Data Science for Equitable Urban Policy. *Housing Policy Debate* 27(6), 913–940. DOI: [10.1080/10511482.2017.1331930](https://doi.org/10.1080/10511482.2017.1331930).
- Knaap, Elijah**, Ding, Chengri, Niu, Yi, and Mishra, Sabyasachee. 2016b. Polycentrism as a Sustainable Development Strategy: Empirical Analysis from the State of Maryland. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 9(1), 73–92. DOI: [10.1080/17549175.2015.1029509](https://doi.org/10.1080/17549175.2015.1029509).
- Pendall, Rolf, Hayes, Christopher, George, Arthur, Dawkins, Casey, Jeon, Jae Sik, **Knaap, Elijah**, Blumenberg, Evelyn, Pierce, Gregory, and Smart, Michael. 2015. Driving to Opportunities: Voucher Users, Cars, and Movement to Sustainable Neighborhoods. *Cityscape* 17(2), 57–87.
- Mishra, Sabyasachee, Welch, Timothy F., Torrens, Paul M., Fu, Cheng, Zhu, Haojie, and **Knaap, Elijah**. 2014a. A Tool for Measuring and Visualizing Connectivity of Transit Stop, Route and Transfer Center in a Multimodal Transportation Network. *Public Transport* 7(1), 77–99. DOI: [10.1007/s12469-014-0091-2](https://doi.org/10.1007/s12469-014-0091-2).
- Mishra, Sabyasachee, Welch, Timothy, Torrens, Paul, Zhu, Haojie, and **Knaap, Elijah**. 2014c. Locating the Most Connected Transit Stop, Route, and Transfer Center: Tool for Users and Decision Makers. In: *Transportation Research Board 93rd Annual Meeting*. 14-5367.

Book Chapters

- Knaap, Elijah**. 2022d. “The Spatial Analysis of Gentrification: Formalizing Geography in Models of a Multidimensional Urban Process”. In: *Handbook of Spatial Analysis in the Social Sciences*. Ed. by Sergio J. Rey and Rachel Franklin. Edward Elgar Publishing, pp.384–399. DOI: [10.4337/9781789903942.00032](https://doi.org/10.4337/9781789903942.00032). <https://www.elgaronline.com/view/book/9781789903942/book-part-9781789903942-32.xml>.
- Finio, Nicholas and **Knaap, Elijah**. 2022b. “Smart Growth’s Misbegotten Legacy: Gentrification”. In: *Handbook on Smart Growth*. Ed. by Gerrit Knaap, Rebecca Lewis, Arnab Chakraborty, and Katy

June-Friesen. Edward Elgar Publishing. DOI: 10.4337/9781789904697.00026. <https://www.elgaronline.com/view/book/9781789904697/book-part-9781789904697-26.xml>.

Nedovic-Budic, Zorica, **Knaap, Elijah**, and Ran, Jing. 2018c. Strategic Planning for GIS Design. *Geographic Information Science & Technology Body of Knowledge 2018(Q3)*. DOI: 10.22224/gistbok/2018.3.8.

Technical Reports

Finio, Nicholas, Lung-Amam, Willow, Bedford, Brandon, **Knaap, Gerrit**, Dawkins, Casey, and **Knaap, Elijah**. 2018d. *Toward an Equitable Region: Lessons from Baltimore's Sustainable Communities Initiative*. Tech. rep. Columbia, MD: Enterprise Community Partners, Inc. <https://www.enterprisecommunity.org/download?fid=9718&nid=6931>.

Avin, Uri, Porter, Christopher, von Stroh, David, **Knaap, Elijah**, and Patnode, Paul. 2016a. *NCHRP 08-36: Sketch Planning Tools for Regional Sustainability*. Tech. rep. Cambridge, MA: Cambridge Systematics, Inc.

Pendall, Rolf, Hayes, Christopher, George, Arthur Taz, Mcdade, Zach, Dawkins, Casey, Jeon Sik, Jae, **Knaap, Elijah**, Blumenberg, Evelyn, Pierce, Gregory, and Smart, Michael. 2014b. *Driving to Opportunity: Understanding the Links among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients*. Tech. rep. March. Washington DC: Urban Institute, p. 68. <https://www.urban.org/research/publication/driving-opportunity-understanding-links-among-transportation-access-residential-outcomes-and-economic-opportunity-housing-voucher-recipients>.

Sartori, Jason, **Knaap, Gerrit**, Liu, Chao, Niu, Yi, Ding, Chengri, **Knaap, Elijah**, and Sandborn, Avery. 2012. *Challenges and Opportunities for Economic Prosperity in the 21st Century: Sustainable and Equitable Economic Development in Maryland*. Tech. rep. College Park, MD: National Center for Smart Growth Research & Education.

Software

Knaap, Elijah. 2020c. *Mardown: Scholarly Manuscripts in Markdown*. DOI: 10.5281/zenodo.3629662. <https://github.com/knaaptime/mardown> (visited on 01/28/2020).

Knaap, Eli, Cortes, Renan Xavier, Rey, Sergio, Gaboardi, James, and Frontiera, Patty. 2020d. *Pysal/Tobler*. DOI: 10.5281/zenodo.3386576. <https://zenodo.org/record/3386576> (visited on 12/10/2020).

Knaap, Elijah, Kang, Wei, Rey, Sergio, Wolf, Levi John, Cortes, Renan Xavier, and Han, Su. 2019d. *Geosnap: The Geospatial Neighborhood Analysis Package*. DOI: 10.5281/ZENODO.3526163. <https://github.com/spatialucr/geosnap> (visited on 11/02/2019).

Cortes, Renan Xavier, **Knaap, Eli**, Rey, Sergio, Kang, Wei, Stephens, Philip, Wolf, Levi John, Härkönen, Antti, Gaboardi, James, and Arribas-Bel, Dani. 2019i. *Pysal/Segregation: Release 1.1.1 (Bug*

Fixes). DOI: [10.5281/ZENODO.3343074](https://doi.org/10.5281/ZENODO.3343074). <https://github.com/pysal/segregation> (visited on 08/22/2019).

Kang, Wei, Rey, Sergio, Stephens, Philip, Malizia, Nicholas, Wolf, Levi John, Lumnitz, Stefanie, Gaboardi, James, Jlaura, Schmidt, Charles, **Knaap, Eli**, and Eschbacher, Andy. 2019h. *Pysal/Giddy: Giddy 2.2.1*. DOI: [10.5281/ZENODO.3351744](https://doi.org/10.5281/ZENODO.3351744). <https://github.com/pysal/giddy> (visited on 08/22/2019).

Manuscripts in Progress

Sergio Rey, **Elijah Knaap**, Ran Wei, & Dylan Skrah, "School Neighborhoods or Neighborhood Schools? The Spatial Structure of the School-Neighborhood Nexus." *American Educational Research Journal*. Under Review.

Elijah Knaap, Chandra Reynolds, Sergio Rey, Robin Corley & Sally Wadsworth, "Measuring the Relationship Between Park Accessibility and BMI: What's the Meaning of Access?." *Landscape and Urban Planning*. Under Review.

Elijah Knaap, Levi Wolf, Sergio Rey, Su Han & Wei Kang, "Modeling Urban Neighborhoods: A Survey of Approaches for Identifying Socio-Spatial Structure." *Geography Compass*. Under Review.

Levi Wolf & **Elijah Knaap**, "Learning Geographical Manifolds: A Kernel Trick for Geographical Machine Learning." *Geographical Analysis*. Under Review.

Elijah Knaap & Sergio Rey, "Measuring Two Decades of Urban Spatial Structure: The Evolution of Agglomeration Economies in American Metros." *Journal of Geographical Systems*. Under Review.

Elijah Knaap & Sergio Rey, "Segregated by Design? The Effect of Street Network Topological Structure on the Measurement of Urban Segregation." *Environment and Planning B: Urban Analytics and City Science*. Under Review.

grants	<p><i>National Institute on Drug Abuse</i> #R21DA054611 Building an innovative Ethno-Geographic Information System (EGIS) to address opioid overdose disparities in Inland Southern California Co-PI (PI: Jennifer Syvertsen) \$232,949</p>	<p>2021 - Present</p>
	<p><i>Bill and Melinda Gates Foundation</i> #INV-024366 geosnap4ed: Neighborhoods in Educational Research Co-PI (PI: Sergio Rey) \$587,011</p>	<p>2020 - Present</p>
	<p><i>National Institute of Health</i> #2R01AG046938-06 Colorado Adoption/Twin Study of Lifespan behavioral development & cognitive aging Co-Investigator (PI: Chandra Reynolds) \$2,380,827</p>	<p>2020 - Present</p>
	<p><i>National Science Foundation</i> #1831615 RIDIR: Scalable Geospatial Analytics for Social Science Research</p>	<p>2018 - Present</p>

Research Associate (PI: Sergio Rey) \$1,000,000

National Science Foundation #1733705

2017 - 2020

Neighborhoods in Space-Time Contexts

Research Associate (PI: Sergio Rey) \$319,949

National Science Foundation #1421935

2014 - 2018

New Approaches for Spatial Distribution Dynamics

Postdoctoral Scholar (PI: Sergio Rey) \$264,999

invited talks

“The Geography of Neighborhood Change: Poverty, Immigration and Gentrification.” Makeover Montgomery 3, Balancing Change in America’s Suburbs. May 4, 2016.

“Retail Location and Transit: An Econometric Examination of Retail Location in Prince George’s and Montgomery County.” Transit, Development, and Forme Urbaine: Washington et Paris, Paris, France. March 14, 2015.

“The Promise and Challenge of Equitable Transit-Oriented Development in Diverse Suburbs.” Transit, Development, and Forme Urbaine: Washington et Paris, Washington, DC. October 18, 2014.

conference talks

“School Neighborhoods or Neighborhood Schools? The Spatial Structure of the School-Neighborhood Nexus.” Sergio Rey, Elijah Knaap, Ran Wei, and Dylan Skrah, Western Regional Science Association, Waikoloa Village, Hawaii. February, 2023.

“Measuring Two Decades of Urban Spatial Structure: The Evolution of Agglomeration Economies in American Metros.” Elijah Knaap & Sergio Rey, North American Regional Science Conference, Montreal, Canada. November, 2022.

“Segregated by Design? The Effect of Street Network Topological Structure on the Measurement of Urban Segregation.” Elijah Knaap & Sergio Rey, North American Regional Science Conference, Montreal, Canada. November, 2022.

“Comparative Spatial Segregation Analytics.” Sergio Rey, Renan Cortes & Elijah Knaap, Western Regional Science Association: Annual Meeting, Online. February, 2021.

“Machines Learn the Chicago School: Modeling Multidimensional Neighborhood Change with Spatial Markov Chains.” Elijah Knaap, Sergio Rey & Levi Wolf, Symposium on Predicting Neighborhood Change Using Big Data and Machine Learning, Berkeley, California. January, 2020.

“Comparing Spatial Inequality in International Contexts.” Elijah Knaap, American Association of Geographers, Washington, D.C.. May, 2019.

“Modeling Neighborhoods Through Time & Space with Geosnap, The GeoSpatial Neighborhood Analysis Package.” Elijah Knaap, Urban Affairs Association, Los Angeles, California. April, 2019.

“Spatio-temporal Analysis of Socioeconomic Neighborhoods.” Sergio Rey & Elijah Knaap, 17th Python in Science Conference, Austin, Texas. July, 2018.

- “Machines Learn the Chicago School: Spatiotemporal Markov Models of Neighborhood Change.” Elijah Knaap & Nicholas Finio, Association of Collegiate Schools of Planning, Denver, Colorado. October, 2017.
- “The Cartography of Opportunity: Spatial Data Science for Equitable Urban Policy.” Elijah Knaap, American Association of Geographers, Boston, Massachusetts. April, 2017.
- “Who Moves to Opportunity? Residential Sorting Models from a Unique Housing Mobility Program in Baltimore.” Elijah Knaap, Association of Collegiate Schools of Planning, Portland, Oregon. November, 2016.
- “Regional Planning, Access to Opportunity, & Freddie Gray: Lessons from Baltimore.” Gerrit Knaap, Elijah Knaap, Nick Finio, Casey Dawkins, Willow Lung-Amam, Association of Collegiate Schools of Planning, Portland, Oregon. November, 2016.
- “Opportunity, Transportation, and Neighborhood Choice: A Quantitative Examination of Housing Voucher Use in Baltimore.” Elijah Knaap, Association of Collegiate Schools of Planning, Houston, Texas. October, 2015.
- “Networks and Neighborhood Effects: The Role of Accessibility in Economic Mobility.” Elijah Knaap & Casey Dawkins, Federal Reserve System Community Development Research Conference, Washington D.C.. April 3, 2015.
- “Improving Social and Economic Equity in Maryland.” Chao Liu, Elijah Knaap & Gerrit Knaap, 14th Annual New Partners for Smart Growth Conference Tech Fair, Baltimore, Maryland. January 3, 2015.
- “Trajectories of Neighborhood Attainment: Evidence from MTO in Baltimore.” Elijah Knaap, Association of Collegiate Schools of Planning, Philadelphia, Pennsylvania. October, 2014.
- “The Use and Misuse of Opportunity Maps.” Elijah Knaap & Chao Liu, Association of Collegiate Schools of Planning, Philadelphia, Pennsylvania. October, 2014.
- “Identifying Maryland Transportation Place Types.” Chao Liu, Ting Ma, Elijah Knaap, & Gerrit Knaap, Association of Collegiate Schools of Planning, Philadelphia, Pennsylvania. October, 2014.
- “Opportunity Mapping Tools to Improve Social and Economic Equity in Maryland.” Elijah Knaap, Chao Liu, & Gerrit Knaap, Makeover Montgomery II, Silver Spring, Maryland. October, 2014.
- “Locating the Most Connected Transit Stop, Route, and Transfer Center: Tool for Users and Decision Makers.” Mishra, S., Welch, T. F., Torrens, P. M., Zhu, H., & Knaap, E., Transportation Research Board 93rd Annual Meeting, Washington D.C.. October, 2014.
- “Opportunity Mapping: A Conceptual Analysis and Application to the Baltimore Metropolitan Area.” Chao Liu, Elijah Knaap & Gerrit Knaap, Annual Conference of the Association for Public Policy Analysis & Management, Washington D.C.. 2013.
- “Opportunity Mapping: Concepts and Techniques.” Elijah Knaap, Chao Liu, & Gerrit Knaap, Joint Meeting of the Association of Collegiate Schools of Planning & Association of European Schools of Planning, Dublin, Ireland. 2013.

“Reclassification of Sustainable Neighborhoods: An Opportunity Indicator Analysis in Baltimore Metropolitan Area.” Chao Liu, Elijah Knaap, & Gerrit Knaap, Joint Meeting of the Association of Collegiate Schools of Planning & Association of European Schools of Planning, Dublin, Ireland. 2013.

“Economic Clusters and Transit Oriented Development: Two for the Price of One.” Elijah Knaap, Yi Niu, Chengri Ding, Sabyasachee Mishra, Tim Welch, Annual Meeting of the Association of Collegiate Schools of Planning & Association, Cincinnati, Ohio. 2012.

“Improving Opportunity Accessibility for Underserved Populations: A Sustainable and Equitable Economic Development (SEED) Initiative for the State of Maryland.” Chao Liu, Gerrit Knaap, Jason Sartori & Elijah Knaap, Annual Meeting of the Association of Collegiate Schools of Planning & Association, Cincinnati, Ohio. 2012.

awards	Staff Appreciation and Recognition (STAR) Award <i>School of Public Policy, University of California, Riverside</i>	2022
	Staff Appreciation and Recognition (STAR) Award <i>School of Public Policy, University of California, Riverside</i>	2021
	All S.T.A.R. Graduate Fellowship <i>University of Maryland Graduate School</i>	2015
	Innovative Student Contribution to Planning Tools Award <i>Scenario Planning Applications Network</i>	2015
	Outstanding Graduate Assistant Award <i>National Center for Smart Growth Research & Education</i>	2014
	Robert Janes Award for contribution to the field of Urban Studies <i>University of Maryland Dept. of Urban Studies and Planning</i>	2012
courses taught	<i>Invited and Short Courses</i>	
	Spatial and Urban Data Science with PySAL (SciPy Annual Conference)	2023
	Spatial and Urban Data Science with PySAL (NARSC)	2022
	Spatial and Urban Data Science with PySAL (SciPy Annual Conference)	2022
	Spatial Inequality Dynamics with PySAL(IALE)	2022
	Spatial and Urban Data Science with PySAL (NARSC)	2020
	Spatial Data Science with PySAL (ACM SIGSPATIAL)	2020
	Spatial Data Science with PySAL (SciPy Annual Conference)	2020
<i>University of California, Riverside</i>		
SPP 150: Exploring Urban Communities with GIS	Fall 2021	

University of Illinois at Chicago

UPP 461: GIS for Urban Planners Fall 2017

University of Maryland

URSP 688Y: Smart Cities and Urban Data Science Spring 2017

URSP 688Q: Intermediate GIS (Co-Instructor) Spring 2014

URSP 688G: Urban Planning Technology (Co-Instructor) Fall 2014

URSP 688G: Urban Planning Technology (Co-Instructor) Spring 2013

**public
history***Selected media coverage*

California Realtors apologize for role in racist housing - *Associated Press*, October 21, 2022

Baltimore's Housing Voucher Program Almost Gets It Right - *CityLab*, January 5, 2016

Defining 'opportunity' in Baltimore - *The Baltimore Sun*, August 3, 2015

service*Professional Memberships*

American Association of Geographers

American Sociological Association

Northeastern Regional Science Association (Treasurer)

Python Spatial Analysis Library (Core Developer, Steering Committee)

QuantEcon (Core Developer)

Regional Science Association International

Scenario Planning Applications Network

Western Regional Science Association

Invited Reviewer

Cities

Environment and Planning B: Urban Analytics and City Science

Geographical Analysis

Housing Policy Debate

International Journal of Geographic Information Science

Journal of Computational Social Science

Journal of Maps

Journal of Planning Education and Research

Journal of Transport Geography

Journal of Urbanism

NSF: Methodology, Measurement, & Statistics Program

computing *Programming*

Python, R, Git, HTML5/CSS, LaTeX, Postgresql/PostGIS, STATA, Javascript

Geographic Information Systems

ArcGIS, QGIS, GeoDa, STARS, PySAL, GeoPandas, sf, spdep