

ELIJAH KNAAP

academic appointments	<i>University of California, Irvine</i> Urban Planning and Public Policy Assistant Professor	2025 –
	<i>San Diego State University</i> Dept. of Geographical Sciences Adjunct Professor	2025 –
	Center for Open Geographical Science Senior Research Scientist & Assoc. Director	2022 – 2025
	School of Public Affairs Adjunct Professor	2022 – 2025
	<i>University of California, Riverside</i> Center for Geospatial Sciences 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 –
	<i>Reaching Regions</i> Editorial Board	2023 –
education	<i>University of Maryland</i> Ph.D. – Urban and Regional Planning & Design Housing and Urban Economics	2016
	M.A. – Community Planning Land-Use Policy and Planning Support Systems	2013
	B.A. – Sociology Social Stratification and Inequality	2011
publications	Books	
	Knaap, Elijah , “Urban Analysis and Spatial Science: Theory, Methods, & Code for Studying Neighborhoods, Cities, & Regions.” <i>Under Contract with CRC Press</i> . Forthcoming 2025. Online version available in draft at https://knaaptome.com/urban_analysis .	
	Peer-Reviewed Journal Articles & Book Chapters	
	Syvertsen, Jennifer, Cabral, Alejandra, Knaap, Elijah , Rey, Sergio, and Pollini, Robin A. 2025. The Emergence of Fentanyl in a Stimulant Landscape: Un/Intentional Use, Social Relations, and Developing Communities of Care. <i>International Journal of Drug Policy</i> 140, 104807. DOI: 10.1016/j.drugpo.2025.104807 .	
	Rey, Sergio J., Knaap, Elijah , Neal, Zachary P., and Andris, Clio. Nov. 5, 2024. Unraveling Incommensurate Spatial Partitions: A Bipartite Graph Approach to School-Neighborhood Interactions and Their Impacts. <i>Networks and Spatial Economics</i> . DOI: 10.1007/s11067-024-09655-x .	

Knaap, Elijah and Rey, Sergio. July 10, 2024. Geosnap: The Geospatial Neighborhood Analysis Package: Open Tools for Urban, Regional, and Neighborhood Science. In: Python in Science Conference. Tacoma, Washington. DOI: [10.25080/FVWM4182](https://doi.curvenote.com/10.25080/FVWM4182). <https://doi.curvenote.com/10.25080/FVWM4182>.

Rey, Sergio J., **Knaap, Elijah**, Wei, Ran, and Skrah, Dylan. 2024d. Measuring Spatial Congruence in the School-Neighborhood Nexus. *Applied Spatial Analysis and Policy*. DOI: [10.1007/s12061-024-09603-9](https://doi.org/10.1007/s12061-024-09603-9).

Knaap, Elijah and Rey, Sergio. June 1, 2024. Measuring Two Decades of Urban Spatial Structure: The Evolution of Agglomeration Economies in American Metros. *Computers, Environment and Urban Systems* 110, 102116. DOI: [10.1016/j.compenvurbsys.2024.102116](https://doi.org/10.1016/j.compenvurbsys.2024.102116).

Knaap, Elijah and Rey, Sergio. Aug. 23, 2023. Segregated by Design? Street Network Topological Structure and the Measurement of Urban Segregation. *Environment and Planning B: Urban Analytics and City Science*, 23998083231197956. DOI: [10.1177/23998083231197956](https://doi.org/10.1177/23998083231197956).

Wei, Ran, **Knaap, Elijah**, and Rey, Sergio. Feb. 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**. Aug. 2022. 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).

Knaap, Elijah. Nov. 15, 2022. “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**. July 8, 2022. “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://doi.org/10.4337/9781789904697.00026). <https://www.elgaronline.com/view/book/9781789904697/book-part-9781789904697-26.xml>.

Rey, Sergio and **Knaap, Elijah**. Aug. 7, 2022. 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. Oct. 7, 2021. Changes in the Economic Status of Neighborhoods 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. June 14, 2021. Sopt: 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. June 2021. The PySAL Ecosystem: Philosophy and Implementation. *Geographical Analysis*, gean.12276. DOI: [10.1111/gean.12276](https://doi.org/10.1111/gean.12276).

Reynolds, Chandra, **Knaap, Elijah**, Corley, Robin, Gebelin, Kyle, Munoz, Elizabeth, Rhee, Soo, and Wadsworth, Sally. Dec. 16, 2020. Accessibility to Parks and Trails and Physical Health Measures

in CATSLife: Evaluating Selection. *Innovation in Aging* 4 (Supplement_1), 508–509. DOI: [10.1093/geroni/igaa057.1642](https://doi.org/10.1093/geroni/igaa057.1642).

Wei, Ran, Rey, Sergio, and **Knaap, Elijah**. Jan. 2, 2021. 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**. Jan. 24, 2021. 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. May 2020. 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. 2020a. 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. Nov. 11, 2019. 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**. Dec. 9, 2019. 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. Sept. 25, 2019. 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. Dec. 24, 2019. 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. May 6, 2019. 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**. Feb. 2019. 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. Sept. 2018. 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. 2018d. 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.

Nedovic-Budic, Zorica, **Knaap, Elijah**, and Ran, Jing. July 1, 2018. Strategic Planning for GIS Design. *Geographic Information Science & Technology Body of Knowledge* 2018(Q3). DOI: [10.22224/gistbok/2018.3.8](https://doi.org/10.22224/gistbok/2018.3.8).

Knaap, Elijah. Nov. 2, 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. Jan. 2, 2016. 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**. Mar. 28, 2014. 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**. 2014a. 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.

Technical Reports

Ellen Reese, Saman Banafti, Marlenee Blas Pedral, Renan Cortes, Mirella Deniz-Zaragoza, Luis Higinio, **Elijah Knaap**, Karthick Ramakrishnan, Sono Shah, and Yiming Shao, “The State of Work in the Inland Empire.” *Economic Mobility Group, Center for Social Innovation at the University of California, Riverside*. 2018.

Finio, Nicholas, Lung-Amam, Willow, Bedford, Brandon, **Knaap, Elijah**, Gerrit, Dawkins, Casey, and **Knaap, Elijah**. 2018a. *Toward an Equitable Region: Lessons from Baltimore’s Sustainable Communities Initiative*. 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*. 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. 2014c. *Driving to Opportunity: Understanding the Links among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients*. 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*. College Park, MD: National Center for Smart Growth Research & Education.

Software

Knaap, Elijah. Jan. 28, 2020. *Mandown: 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. Sept. 23, 2020. *Pysal/Tobler*. DOI: 10.5281/zenodo.3386576. <https://zenodo.org/record/3386576> (visited on 12/10/2020).

Rey, Sergio, Wolf, Levi John, Stephens, Philip, Gaboardi, James, Schmidt, Charles, Fleischmann, Martin, Laura, Jay, Arribas-Bel, Dani, Oshan, Taylor, Folch, David C., Mhwang4, Kang, Wei, Malizia, Nicholas, Amaral, Pedro, **Knaap, Eli**, Anselin, Luc, Mragank Shekhar, De Andrade, Elliott Sales, Winslow, Andrew, Marynia, Shao, Hu, KSai, Lumnitz, Stefanie, Couwenberg, Bas, Gregg, Forest, Jotham Apaloo, Siddharth S, Eschbacher, Andy, and Reagan, Andy. Oct. 1, 2023. *Pysal/Libpysal*. Version v4.8.0. Zenodo. DOI: 10.5281/ZENODO.1472807. <https://zenodo.org/record/1472807>.

Rey, Sergio, Kang, Wei, Wolf, Levi John, Shao, Hu, **Knaap, Eli**, Fleischmann, Martin, Mridul Seth, Sugam Srivastava, Gaboardi, James, PrivateAGI, Palla, Giovanni, Arribas-Bel, Dani, and Qiusheng Wu. Sept. 29, 2023. *Pysal/Pointpats*. Version v2.4.0. Zenodo. DOI: 10.5281/ZENODO.2366048. <https://zenodo.org/record/2366048> (visited on 10/13/2023).

Gaboardi, James, Erin, Rey, Sergio, Barcelos, Germano, **Knaap, Eli**, Feng, Xin (Selena), Rwei5, Ellersiek, Timothy, Wolf, Levi John, Fleischmann, Martin, Bearman, Nick, and Camargo, Pedro. Jan. 14, 2023. *Pysal/Spopt*. Version v0.5.0. Zenodo. DOI: 10.5281/ZENODO.4444155. <https://zenodo.org/record/4444155> (visited on 10/13/2023).

Rey, Sergio, Wolf, Levi John, Gaboardi, James, Arribas-Bel, Dani, Kang, Wei, Mhwang4, Laura, Jay, Stephens, Philip, Fleischmann, Martin, Schmidt, Charles, Lumnitz, Stefanie, **Knaap, Eli**, Folch, David C., Duque, Juan C, Anselin, Luc, Malizia, Nicholas, Filipe, Louf, Thomas, Matthewborish, Sauer, Jeff, Morales, Leo, Mlyons-Tcc, Mridul Seth, and Fernandez, Nicolas. Aug. 25, 2023. *Pysal/Esda*. Version v2.5.0. Zenodo. DOI: 10.5281/ZENODO.1403275. <https://zenodo.org/record/1403275> (visited on 10/13/2023).

Knaap, Elijah, Kang, Wei, Rey, Sergio, Wolf, Levi John, Cortes, Renan Xavier, and Han, Su. Nov. 2, 2019. *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, Elijah, Rey, Sergio, Kang, Wei, Stephens, Philip, Wolf, Levi John, Härkönen, Antti**, Gaboardi, James, and Arribas-Bel, Dani. July 19, 2019. *Pysal/Segregation: Segregation Analysis, Inference, and Decomposition*. DOI: 10.5281/ZENODO.3343074. (Visited on 11/02/2019).

Kang, Wei, Rey, Sergio, Stephens, Philip, Malizia, Nicholas, Wolf, Levi John, Lumnitz, Stefanie, Gaboardi, James, jlaura, Schmidt, Charles, **Knaap, Eli**, and Eschbacher, Andy. July 26, 2019. *Pysal/Giddy: Giddy 2.2.1*. DOI: 10.5281/ZENODO.3351744. <https://github.com/pysal/giddy> (visited on 08/22/2019).

Manuscripts in Progress

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*. In Revision.

Elijah Knaap, Sergio Rey, Renan Cortes & Wei Kang, “The Daily Ballet of Temporary Integration: Spatio-Temporal Segregation Dynamics in Metropolitan U.S.A.” *Growth and Change: A Journal of Urban and Regional Policy*. In Revision.

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

Elijah Knaap, “Measuring the Purple Line’s Effect on Residential Rents: Spatial Econometrics and Causal Inference in Urban Policy Analysis.” *Journal of Regional Science*. In Revision.

Sergio J. Rey, Elijah Knaap, Jennifer Syvertsen, & Alejandra Cabral, “Exploring Space-Time Interactions in Fatal Opioid Overdoses.” *Geographical Analysis*. Under Review.

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

grants	<i>National Science Foundation #2345820</i>	2024 - Present
	POSE: Phase II: An Open Source Ecosystem for Spatial Data Science	
	Co-PI (PI: Sergio Rey) \$1,484,914	
	<i>National Institute on Drug Abuse #R21DA054611</i>	2021 - Present
	Building an innovative Ethno-Geographic Information System (EGIS) to address opioid overdose disparities in Inland Southern California	
	Co-PI (PI: Jennifer Syvertsen) \$232,949	
	<i>National Institute On Aging #2R01AG046938-06</i>	2020 - Present
	Colorado Adoption/Twin Study of Lifespan behavioral development & cognitive aging	
	Co-Investigator (PI: Chandra Reynolds) \$11,308,000	
	<i>Robert Schalkenbach Foundation</i>	2023 - 2024
	Proof-of-Concept Land Value Models: A Spatial Econometric Approach	
	Co-PI (PI: Chester Harvey) \$30,000	
	<i>Bill and Melinda Gates Foundation #INV-024366</i>	2020 - 2024
	geosnap4ed: Neighborhoods in Educational Research	
	Co-PI (PI: Sergio Rey) \$587,011	
	<i>National Science Foundation #1831615</i>	2018 - 2023
	RIDIR: Scalable Geospatial Analytics for Social Science Research	
	Research Associate (PI: Ran Wei) \$1,000,000	
	<i>National Science Foundation #1759746</i>	2018 - 2023
	Comparative Regional Inequality Dynamics: Multiscalar and Multinational Perspectives	
	(Research Associate) (PI Sergio Rey) \$327,513	
	<i>National Science Foundation #1733705</i>	2017 - 2020
	Neighborhoods in Space-Time Contexts	
	Research Associate (PI: Sergio Rey) \$319,949	
	<i>National Science Foundation #1421935</i>	2014 - 2018
	New Approaches for Spatial Distribution Dynamics	

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

invited talks

- “Segregated by Design? The Effect of Street Network Topological Structure on the Measurement of Urban Segregation.” Geography Seminar Series, University of Maryland Department of Geography. April 20, 2023.
- “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

- “Location Choices and Overdose Fatalities: Structural Sorting in the Opioid Epidemic.” Elijah Knaap, Sergio Rey, Jennifer Syvertsen & Alejandra Cabral, Annual Meeting of the North American Regional Science Council, Honolulu, Hawaii. November, 2024.
- “GeoGraphs for Spatially Embedded Networks.” Sergio Rey, Elijah Knaap, Zachary Neal & Clio Andris, American Association of Geographers Annual Meeting, Honolulu, Hawaii. April, 2024.
- “Measuring the Purple Line’s Effect on Residential Rents: Spatial Econometrics and Causal Inference in Urban Policy Analysis.” Elijah Knaap, Western Regional Science Association Annual Conference, Monterrey, California. February, 2024.
- “The Effect of Transit Investments on Local Residential Rents: Causal Inference in Spatial Policy Analysis.” Elijah Knaap, North American Regional Science Council Annual Conference, San Diego, California. November, 2023.
- “GeoGraphs for Spatially Embedded Networks.” Sergio Rey, Elijah Knaap, Zachary Neal & Clio Andris, Spatial Econometrics Association Annual Conference, San Diego, California. November, 2023.
- “PySAL and Friends: Reflections on Onboarding, Growth, and Change.” Elijah Knaap & Sergio Rey, Spatial Econometrics Association Annual Conference, San Diego, California. November, 2023.
- “Measuring Two Decades of Urban Spatial Structure: The Evolution of Agglomeration Economies in American Metros.” Elijah Knaap & Sergio Rey, Association of Collegiate Schools of Planning, Chicago, Illinois. October, 2023.
- “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 Council Annual 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 Data Analysis and Econometrics with PySAL (NARSC)	2024
	Leveraging Python for Spatial Data Science (CARTO SDSC San Francisco)	2024
	Spatial Data Analysis and Econometrics with PySAL (Western Regional Science Association)	2024
	Spatial Data Science with PySAL (CARTO SDSC New York City)	2023

Spatial Data Analysis and Econometrics with PySAL (NARSC)	2023
Spatial and Urban Data Science with PySAL (NARSC)	2022
Spatial and Urban Data Science with PySAL (SciPy)	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)	2020

University of California, Riverside

SPP 150: Exploring Urban Communities with GIS	Fall 2021
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University of Illinois at Chicago

UPP 461: GIS for Urban Planners	Fall 2017
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University of Maryland

URSP 688Y: Smart Cities and Urban Data Science	Spring 2017
URSP 688Q: Intermediate GIS	Spring 2014
URSP 688G: Urban Planning Technology	Fall 2014
URSP 688G: Urban Planning Technology	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

North American Regional Science Council (Councillor-At-Large 2024–2026)

Northeastern Regional Science Association (Treasurer)

Python Spatial Analysis Library (Core Developer, Steering Committee)

QuantEcon (Core Developer)

Regional Science Association International

Scenario Planning Applications Network

Spatial Econometrics Association

Western Regional Science Association

Invited Reviewer

American Educational Research Association Open

Annals of the American Association of Geographers

Applied Geography
 Applied Spatial Analysis and Policy
 Cities
 Computers, Environment, and Urban Systems
 Environment and Planning B: Urban Analytics and City Science
 Geographical Analysis
 Growth and Change: A Journal of Urban and Regional Policy
 Housing Policy Debate
 International Journal of Geographic Information Science
 Journal of Advanced Transportation
 Journal of Computational Social Science
 Journal of Geographical Systems
 Journal of Maps
 Journal of Planning Education and Research
 Journal of Transport and Land Use
 Journal of Transport Geography
 Journal of Urbanism
 Journal of Urban Affairs
 Nature Cities
 Networks and Spatial Economics
 NSF: Methodology, Measurement, & Statistics Program
 Papers in Regional Science
 Socio-Economic Planning Sciences
 Transactions in GIS
 Urban Studies

computing *Programming*

Python (PyData NumPy, Pandas, Scikit-Learn, Scipy, statsmodels, seaborn, matplotlib, geopandas, pysal, lineramodels), R (tidyverse, sp, sf, sfdep, spdep, spphet, splm, nlme, lme4, lavaan), Bash, Git, HTML5/CSS, LaTeX, Make, Postgresql/PostGIS, Javascript

DevOps

Git/Version Control, Continuous Integration/Continuous Development, Test-Driven Development, Cloud Computing, Docker/Virtualization,

Geographic Information Systems

[ArcGIS](#), [QGIS](#), [GeoDa](#), [STARS](#), [PySAL](#), [GeoPandas](#), [r-spatial](#), [spdep](#)