

Wenfei Xu

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Academic Appointments

Assistant Professor, Department of City and Regional Planning, College of Architecture, Art, and Planning, Cornell University, July 2022 - present

Postdoctoral Fellow, Mansueto Institute for Urban Innovation and Center for Spatial Data Science, University of Chicago, Jan 2022 - June 2022

Education

PhD in Urban Planning, Columbia University, Jan 2022

Dual Master of City Planning, Masters of Architecture, MIT, June 2016

B.A. in Economics, University of Chicago, June 2008

Refereed Journal Articles

Xu, W. Where did Redlining Matter?: Regional Heterogeneity and the Uneven Distribution of Advantage (under review)

Xu, W. (2022). Legacies of Institutionalized Redlining: A Comparison Between Speculative and Implemented Mortgage Risk Maps in Chicago, Illinois. *Housing policy debate*, 32(2), 249-274. <https://doi.org/10.1080/10511482.2020.1858924> ([Data and code](#))

- Winner, IPUMS Annual Research Awards, Best Published Work in Spatial Data

Xu, W. (2021). The contingency of neighbourhood diversity: Variation of social context using mobile phone application data. *Urban Studies*, 00420980211019637. DOI: [10.1177/00420980211019637](https://doi.org/10.1177/00420980211019637). ([Code](#))

Organizers, Kang, W., Oshan, T., Wolf, L. J., Discussants, , Boeing, G., Frias-Martinez, V., Gao, S., Poorthuis, A., & **Xu, W.** (2019). A roundtable discussion: Defining urban data science. *Environment and Planning B: Urban Analytics and City Science*, 46(9), 1756-1768. <https://doi.org/10.1177/2399808319882826>

Williams, S., **Xu, W.**, Tan, S. B., Foster, M. J., & Chen, C. (2019). Ghost cities of China: Identifying urban vacancy through social media data. *Cities*, 94, 275-285. <https://doi.org/10.1016/j.cities.2019.05.006>

Book Chapters, Essays, and Other Publications

Xu, W. (2022, March 22). Is “Regulation from Below” Possible? *Public Books*. <https://www.publicbooks.org/community-organizing-and-financialization-of-housing/>

- Tan, S. B., **Xu, W.**, Williams, S. (2022). "Spatial Distribution of High-End Housing in Chinese Private Resale Housing Markets" (accepted in "The City in the Twenty-First Century", *University of Pennsylvania Press*)
- Xu, W.** (2018). Urban explorations: Analysis of public park usage using mobile GPS data. *arXiv preprint* [arXiv:1801.01921](https://arxiv.org/abs/1801.01921).
- Xu, W.** Review of *Scale: The universal laws of growth, innovation, sustainability, and the pace of life in organisms, cities, economies, and companies*, by Geoffrey West. *Environment and Planning B: Urban Analytics and City Science*, 45(3), 586–588. <https://doi.org/10.1177/2399808317735012>
- Giampieri, M. A., Williams, S., **Xu, W.**, Gunc, H., Langston, C. M., & Harvey, D. C. (2017). Benchmark: using sensors to study public space. In *Free and Open Source Software for Geospatial (FOSS4G) Conference Proceedings* (Vol. 17, No. 1, p. 22).
- Olascoaga, C. S., **Xu, W.**, & Flores, H. (2016). Crowd-Sourced Neighborhoods-User-Contextualized Neighborhood Ranking. http://papers.cumincad.org/cgi-bin/works/paper/ecaade2016_023

Selected Presentations (* invited)

- 2022 "Beyond Representation: Mapping as a Projective and Processual Medium", Technische Universität Berlin, Representing Infrastructure course, David Bauer, Prof. Dr. Elke Beyer, Prof. Anke Hagemann *
- 2022 "Regional Heterogeneity and the Uneven Distribution of Advantage in Historical Federal Mortgage Insurance Outcomes", Center for Spatial Data Science, University of Chicago, Chicago, IL *
- 2022 "Regional Heterogeneity and the Uneven Distribution of Advantage in Historical Federal Mortgage Insurance Outcomes", Urban Affairs Association, Washington, D.C.
- 2022 "The Past, Present, and Future of Cities", Center for Governance and Markets, Graduate School of Public and International Affairs, the Department of Economics, University of Pittsburgh, Pittsburgh, PA *
- 2022 "Regional Heterogeneity and the Uneven Distribution of Advantage in Historical Federal Mortgage Insurance Outcomes", American Association of Geographers Annual Meeting
- 2022 "Regional Heterogeneity and the Uneven Distribution of Advantage in Historical Federal Mortgage Insurance Outcomes", Mansueto Institute for Urban Innovation, University of Chicago, Chicago, IL *

- 2022 “The Contingency of Neighborhood Diversity: Variation of Social Context Using Mobile Phone Location Data”, Spatial Analysis + Data Seminar Series, Newcastle University, University of Bristol and The Alan Turing Institute *
- 2021 “The Contingency of Neighborhood Diversity: Variation of Social Context Using Mobile Phone Location Data”, Brown Bag Seminar Series, Geographic Data Science Lab, University of Liverpool *
- 2021 “The Contingency of Neighborhood Diversity: Variation of Social Context Using Mobile Phone Location Data”, Population Association of America Annual Meeting
- 2020 “Innovations in Urban Data Science”, Seminar in Applied Math, Chris Wiggins, Columbia University, New York *
- 2020 “The Contingency of Neighborhood Diversity: Variation of Social Context Using Mobile Phone Location Data”, Association of Collegiate Schools of Planning Annual Conference
- 2020 “Legacies of Institutionalized Redlining”, Housing Lab Conversation Series, Columbia University GSAPP, New York, NY *
- 2020 “The Contingency of Neighborhood Diversity: Variation of Social Context Using Mobile Phone Location Data”, Predicting Neighborhood Change Using Big Data and Machine Learning Conference, University of California Berkeley, Berkeley, CA
- 2019 “The Crystallizing Influence of HOLC Residential Security Maps”, Social Science History Association Annual Conference, Chicago, IL
- 2019 “Defining Urban Data Science”, Undergraduate Statistics Seminar, Ronald Neath, Columbia University, New York *
- 2019 “The Persistence of Racial Segregation through Redlining”, American Association of Geographers Annual Meeting, Washington, D.C.
- 2019 “A Roundtable Discussion: Defining Urban Data Science”, American Association of Geographers Annual Meeting, Washington, D.C. *
- 2019 STEM+Arts Panel, Rutgers University, Rutgers, NJ *
- 2019 “Storytelling for Civic Tech” Panel, Open Data Week, New York, NY *
- 2019 “Legacies of Institutionalized Redlining”, Digital History for Public Historians Course, Molly Taylor-Polesky, Middle Tennessee University *
- 2019 Overview of current and previous projects, Urbanisms + Algorithms course, Luc Wilson and Meli Harvey, Columbia GSAPP *

- 2018 “From Static to Dynamic: Using cell phone application data to measure 24-hour population dynamics”, Open Data Science Conference Europe, London, UK *
- 2018 “The Social Life of Large Urban Parks”, American Association of Geographers Annual Meeting, New Orleans LA.
- 2017 “The Social Life of Large Urban Parks”, New York City Department of Parks and Recreation, New York, NY *
- 2017 “Exploratory Data Analysis 101.” Big Data, Visualization, and Society course, Sarah Williams, MIT, Cambridge, MA, 2017 *
- 2017 “The Social Life of Large Urban Parks”, Bloomberg Data for Good Exchange, New York, NY
- 2017 “Ghost Cities of China”, North American Cartographic Information Society, Montreal, Canada
- 2017 “A Tale of Two Brooklyns: Heterogeneous Preferences in Cultural Consumption between ‘Urban’ and ‘Suburban’ Brooklyn”, International Conference on Computers in Urban Planning and Urban Management
- 2016 “Ghost Cities of China”, North American Regional Science Council, Minnesota, MN
- 2016 “Opportunities for using Big Data in Policymaking”, Kenya Evidence Forum, World Bank, Nairobi, Kenya *
- 2014 “Formalizing Informal Transit in Nairobi”, Media Architecture Biennale, Aarhus, Denmark *

Professional Experience

2020-21 Data Scientist, Department of Homeless Services, New York, NY

- Analyze data from DHS and outreach providers to create outreach metrics and targets. Develop predictive models on service usage patterns of clients.

2017-19 Spatial Data Scientist, CARTO, New York, NY

- Evaluated and modeled derivative datasets from mobile application GPS data for product delivery. Created case studies and software packages for new datasets and techniques. Primary organizer of the inaugural spatial data science conference.

2016-17 Research Associate, MIT Civic Data Design Lab, Cambridge, MA

- “Bnchmark” project co-lead: Designed an urban sensor infrastructure directed towards understanding micro-decisions and interactions in public space along with the environmental factors that may affect usage.

- “Ghost Cities of China” project lead: Formulated research agenda and developed an amenities-based gravitational model for discovering underutilized residential housing in neighborhoods across various cities. Lead a team of computer scientists, urban planners and designers to implement a large-scale project involving data exploration, background research, ground-truthing, web application development, and exhibition design.
- 2015 Research Assistant, MIT Senseable Cities Lab, Cambridge, MA
- Developed a spatial clustering model to analyze risk per street segment by density of pedestrians, weather, road incline, crime, and 311 data.
- 2015 Stamen Fellow, Stamen Design, San Francisco, CA
- Partnered with the Museum of Contemporary Art in Chicago to analyze the dispersal of cultural events in the Los Angeles metropolitan region through a series of web maps to understand accessibility of culture in the city.
- 2014 Graph Network Analyst, Inter-American Development Bank
- Worked with the Regional Public Goods program to develop a series of network models describing the nature of national and institutional collaborations amongst Central and South American countries.
- 2011 Assistant to the COO, Planned Parenthood Federation of America, New York, NY
- Coordinated the schedule of the COO and compiled draft summary reports of activities and policy implementations within all Planned Parenthood organizations and nationwide programs.
- 2008-11 Associate, Deutsche Bank Global Markets, New York, NY
- Advised money managers, insurance and pension funds, and hedge funds on rate-based, mortgage and asset-backed security trades for specific investment strategies.

Grants, Honors, and Fellowships

- 2022 Postdoctoral Fellowship, Mansueto Institute and Center for Spatial Data Science
- 2020 Small Research Grant on Racial Justice, American Association of Geographers Digital Geographies Specialty Group
- 2020- Fellowship, Columbia University Population Research Center
- 2018- Doctoral Fellowship, Columbia University GSAPP
- 2017 “HyperLocal – Sensing Cities for People”, Gehl Institute
- 2012-16 Tuition Fellowship, Department of Urban Planning and Department of Architecture, MIT
- 2015 Stamen Fellow, Stamen Design
- 2014 Winner Participatory Architecture and Urban Interaction, Media Architecture Biennale
- 2014 Avalon Travel Grant Department of Architecture, MIT
- 2008 Square D Travel Grant for Bachelor of Arts Thesis, University of Chicago

Teaching Experience

- 2021 Teaching Fellow, Urban Economics, Columbia University GSAPP, Spring
- 2019,20 Instructor of Record, Data Metrics and Visualization I, Design for Social Innovation, School of Visual Arts, Fall
- 2019 Instructor of Record, Data Metrics and Visualization II, Design for Social Innovation, School of Visual Arts, Spring
- 2020,21 Teaching Fellow, Quantitative Methods, Columbia University GSAPP, Spring and Fall
- 2019 Teaching Fellow, History and Theory of Planning, Columbia University GSAPP, Fall
- 2014 Teaching Assistant, Thesis Research Design Seminar, MIT DUSP, Fall

Service and Memberships

Conference Sessions

- 2022 “Whiteness, Anti-Blackness and Urban Development: I and II.”, with Taylor Shelton and Scott Markley. American Association of Geographers.

Organizing

- 2020 Student Director-at-Large, Board of Directors, North American Cartographic Information Society (NACIS)
- 2019 Primary Organizer, Lectures in Planning Series, Columbia University GSAPP, New York, NY
- 2018,19 Co-Organizer, Data x Design, Open Data Week, New York, NY
- 2017,18 Primary Organizer, Spatial Data Science Conference, CARTO, New York, NY

Memberships

- 2016- American Association of Geographers
- 2017- Association of Collegiate Schools of Planning
- 2018- American Sociological Association
- 2018- Population Association of America
- 2019- Social Science History Association
- 2020- Urban Affairs Association
- 2020- American Planning Association

Peer Reviewer: *American Sociological Review*, *Environment and Planning B*, *Journal of Spatial Information Science*, *Urban Affairs Review*, *Spatial Economic Analysis*, *Journal of Transport Geography*

Media and Exhibitions

- 2019 Bovolaneas, B., **Xu, W.**, Lynn PhD, S., Anderson, D., Batson PhD, J., ... & Dodds, P. (Speaker). (2019). *How to Work in Data Science: Background & Skills* [Video]. SAGE Research Methods Video: Data Science, Big Data Analytics, and Digital Methods <https://www.doi.org/10.4135/9781526495488>
- 2019 Lynn, S., **Xu, W.**, & Ferzoco, J. (Speaker). (2019). *Understanding Usage of NYC Public Parks with Spatial Data Science: CARTO* [Video]. SAGE Research Methods Video:

Data Science, Big Data Analytics, and Digital Methods

<https://www.doi.org/10.4135/9781526493309>

- 2019 Lynn, S., Fan, D., **Xu, W.**, & Eschbacher, A. (Speaker). (2019). *Using Spatial Data Science to Improve Food Truck Sales: CARTO* [Video]. SAGE Research Methods Video: Data Science, Big Data Analytics, and Digital Methods
<https://www.doi.org/10.4135/9781526493231>
- 2018,19 Co-organizer and curator, Data x Design, New York, NY
- 2017 “Ghost Cities of China”, Seoul Biennale of Architecture and Urbanism, Seoul, South Korea
- 2015 “AFRICA architecture, culture and identity”, Louisiana Museum of Modern Art, Humbledaek, Denmark
- 2014 “Mapmaker Manifesto: YOU ARE HERE AND SO AM I”, Istanbul Architecture Biennial, Istanbul, Turkey

Media mentions include: Wired, The Economist, NPR, Audi Urban Future Initiative, The Guardian, Atlantic Cities.

Skills

Programming Languages and Tools: Python, R, SQL, HTML5/CSS/Javascript, Unix shell scripting, AWS/Azure/Google cloud platforms, Dask, Spark, Python libraries for data analysis: scipy, numpy, sklearn, pandas

Spatial: ArcGIS, QGIS, postGIS, Python spatial analysis libraries (PySal, GeoPandas, Fiona, Shapely, OGR/GDAL), Mapbox.js

Languages

English: Native

Mandarin Chinese: Native

French: Intermediate