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Postdoctoral Associate, Institute of Behavioral Science, University of Colorado, Boulder

Ph.D. Geography, Arizona State University

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## Education

### Doctor of Philosophy, Geography

Arizona State University • Tempe, AZ • 2024

- Dissertation: The geography of inequality in STEM: migration, gender, and economic disparities.
- Advisors: Dylan Connor (co-chair, Stanford/ASU); Wei Li (co-chair, ASU); Mark Ellis (UW)
- GPA: 4.0/4.0

### Master of Science, Urbanisation and Development

London School of Economics and Political Science • London, UK • 2017

- GPA: 3.7/4.0

### Bachelor of Arts, Geography

University of Washington • Seattle, WA • 2015

- GPA: 3.6/4.0

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## Research Interests

### Innovative Spatial Health Big Data and Hyper-Local Analysis:

Developing novel spatial health datasets from administrative, environmental, and economic sources. Applying advanced spatial statistics, machine learning, and spatial-econometric models to reveal how long-term socio-economic, built environments, and business dynamics shape population health at neighborhood and community scales.

### Data-Driven GeoHealth for Science and Policy:

Bridging machine learning, GIScience, and spatial epidemiology with public health policy research. Collaborated with federal agencies, healthcare providers, and NGOs to develop GeoHealth analytics that track health trends and drive actionable policy — from targeting high-risk populations to evaluating healthcare program integrity and guiding community-level interventions.

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## Research Experience

### University of Colorado Boulder • CU Population Center & Institute of Behavioral Science

Postdoctoral Associate • Boulder, CO • November 2024 to Present

- **National Institute on Aging. R01. Addressing the Midlife Mortality Crisis: Place-Based Modeling, Trend Analysis and Policy Interventions**
  - Developed large-scale geospatial health datasets with over 10 million confidential mortality records from 16 state governments using R, GeoDa, Python and SAS.
  - Created machine-learning longitudinal models to monitor mid-life mortality trends and demographic and socioeconomic changes across American neighborhoods, understanding place-based health determinants for the mid-aged population.
  - Analyzed regional and local determinants of mid-life mortality in the US by utilizing Bayesian multinomial models, multi-level models and spatial autocorrelation models.
  - Cleaned, extracted and analyzed 2 million business establishment records from the National Establishment Time Series (NETS) Datasets.
  - Constructed a working database integrating business records, census data and health records to analyze the health impacts of business dynamics using Geographically Weighted Regression.
  - Lead conference presentation and drafting manuscripts.

### Acumen LLC / SPHERE Institute

Data & Policy Analyst • Burlingame, CA • November 2022 to May 2024

- Clean, process, and analyze large health datasets, including over 20 million Medicaid, Medicare, and nursing facility records.
- Evaluate nursing home service quality and medical insurance program integrity.
- Developed sequence analysis method with clinicians and policy experts to detect fraud claims and drug abuse.
- Utilized SAS EBI, streamlined analysis of longitudinal data from the Integrated Data Repository, managed, and scrutinized insurance claims after beneficiary's demise.
- Drafted policy reports and visualizations for regular client meetings.

# Siqiao Xie

- Identified regional patterns in prevalent health conditions and high-risk populations by analyzing confidential Medicaid and Medicare claims data using SAS, R, SQL, multiple regression, and frequency charts.
- Presented comprehensive reports to clients, including the Centers for Medicare & Medicaid Services (CMS), Center for Program Integrity, and Nursing Home Quality Initiative.

## Arizona State University • Spatial Analysis Research Center

Graduate Research Associate (Part-time) • Tempe, AZ • August 2018 to November 2024

- **National Institute of Health. R21. Trends, transitions, and well-being in small-town America.**
  - Established typologies of longitudinal demographic and socioeconomic changes in small towns of the US using sequence analysis, machine-learning clustering, and geospatial analysis in R, Python, and ArcGIS.
  - Mapped and modeled community change and health risk using geospatial clustering, multinomial logit models and spatial autocorrelation models in R and ArcGIS.
  - Presented research findings at the National Association of Regional Science conference.
  - Drafted annotated bibliography for studies of longitudinal community change.
- **National Science Foundation: Humans, Disasters, and the Built Environment program. The creeping disaster along the coast: Built environment, coastal communities and population vulnerability to sea level rise.**
  - Analyzed built-environment features and developed urban landscape metrics of 709 commuting zones in the US with remote sensing images and Ztrax dataset using python and ArcGIS.
  - Predicted regional socioeconomic change in relation to build-environment changes, using machine learning feature selection, regularization and causal inference techniques in Python and R.
- **COVID-19 and a World of Ad Hoc Geographies book project.**
  - Led a three-person team, developed the research design, and oversaw data analysis.
  - Developed a community-level race-specific social vulnerability measure to predict racial inequality and identify communities at risk of COVID-19 using ACS PUMS data.
  - Created California state-wide hot-spot maps for anti-Asian racism incidents using Google Map Geolocation API and online survey from STOP AAPI HATE NGO.
  - Drafted the introduction, method, findings and discussion sections of 1 peer-reviewed book chapter.
  - Delivered 4 in-person and online presentations to STOP AAPI HATE NGO, school departments of Arizona State University and Eastern Mennonite University, and Association of American Geographer national conference.

## Peer-reviewed Publications

Xie, S. Connor, D. (2025) Stemming the tide of inequality? Immigration, gender, and spatial income disparities in today's leading technological sectors. *Annals of the Association of American Geographers* (Revise & Resubmit) Available at SSRN: <https://ssrn.com/abstract=4036007> or <http://dx.doi.org/10.2139/ssrn.4036007>

Xie, S. Connor, D. (2025) Highly skilled immigrants make outsized economic contributions in lagging regions. *Proceedings of the National Academy of Sciences* (Under review)

Connor, Xie, S. Jang, J. (2025) Sprawling cities fuel inequality across generations. *PNAS Nexus*: 2025, 00, pgae587

Connor, D. Xie, S. Uhl, J., and Talbot, C., Hester, C., Jaworski, T., Gutmann, M., Leyk, S. and Hunter, L (2024) Poverty dynamics and social mobility in rural America. *Population Space and Place*: e-2802

Xie, S. (2023) Global education trajectories and inequality: STEM workers From China to the US. *Journal of Ethnic and Migration Studies*: 49 (18), 4699-4721.

Xie, S. Li, W. Tan, Y (2021) Vulnerability, Infection, and Anti-Discrimination among Asian Americans and COVID-19: Explorations into Race and Health Intersections in California. In: S.D. Brunn (ed.), *COVID-19 and a World of Ad Hoc Geographies*. New York: Springer

## Other Publications

Xie, S. (2025). Crosswalks between Commuting Zones and Historical Geographies (1990–2020) [Data set]. University of Colorado Boulder. <https://doi.org/10.25810/5XP7-YE36>

Xie, S. (2025). 100\*100m Population Grid (2020 Census) [Data set]. University of Colorado Boulder. <https://doi.org/10.25810/PB2D-P578>

Xie, S. (2025). GEO-NSCG 2021 5-Year Estimates [Data set]. University of Colorado Boulder. <https://doi.org/10.25810/5D5P-FX2Q>

Xie, S; Li, W (2019), New representation or new misrepresentation? Critical reflection of Crazy Rich Asians. *Model Minority Magazine at Dartmouth College*, inaugural issue,

## Presentations

2025, Xie, S; Immigration and America's new wealth frontier, *Annual conference of the American Association of Geographers*, Stanford Center for Advanced Study in the Behavioral Sciences Geowealth workshop

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2022, **Xie, S**; Pathway to Success: education trajectories and inequality in STEM, *Annual conference of the American Association of Geographers*

2022, **Xie, S**; The geography of foreign education: imputing location of foreign-born STEM workers in the US, ASU Spatial Analysis Research Center (SPARC) presentation series

2022, **Xie, S**; Pathway to Success: education trajectories and inequality in STEM, *Annual conference of the American Association of Geographers*

2022, 2021, **Xie, S**; Li, W; Covid-19 and Anti-Asian racism, invited talks at ASU School of Social Transformation, Eastern Mennonite University Center for Justice and Peacebuilding

2021, **Xie, S**; Occupational selectivity and migration-gender wage inequality in STEM. *Race, Ethnicity, and Place Conference*, the Middle Atlantic Division of the American Association of Geographers (MAD-AAG) joint meeting.

2021, **Xie, S**; Different major: geography. Podcast at ASU International Student Service Center

2019, **Xie, S**; Lacey, E. How can sharing personal narratives of migration help us find connectedness in our differences? Invited talk at ASU Graduate College 80th Anniversary, Tempe, AZ

2019, **Xie, S**; Cooke, A; Connor, D. Employment Dynamics and Long-term Neighborhood Change: Buffalo, NY 1940 to 2017. 66th Annual North American Meetings of the *Regional Science Association International*, Pittsburgh, PA

## Works in Progress

**Xie, S** (with Gutmann, M., Leyk, S. and Berg, A) Mid-life mortality crisis and local determinants of health

**Xie, S** (with Gutmann, M., Leyk, S. and Sun, Y.) Business dynamics and the death of despair

**Xie, S** (with Connor, D, Storper, M. Kemeny, T. Jang, J.) Racial wealth inequality in the US

**Xie, S** (with Connor, D, Storper, M. Kemeny, T.) The US housing crisis and its impact on long-term wealth inequality

**Xie, S** (with Connor, D, Suss, J. Kemeny, T.) Geography of immigrant wealth in the US

**Xie, S** (with Connor, D.) Where are the "World's Best and Brightest": foreign-born workers, foreign education and STEM labor markets of the US

**Xie, S** (with Cooke, A; and Connor, D;) Employment Dynamics and Long-term Neighborhood Change: Buffalo, NY 1940 to 2017

## Consulting Reports

**Xie, S.** Panishkavili.N (2023). "Health condition trend among Medicaid beneficiaries in the states of New York and Pennsylvania". Consultancy report to Center of Medicaid and Medicare Services. Acumen LLC/SPHERE Institute.

**Xie, S** (2023). "Antipsychotic drug abuse monitoring using time series analysis". Consultancy report to Nursing Home Quality Initiative. Acumen LLC/SPHERE Institute.

**Xie, S.** Byrne, E. (2023). "Evaluating State program integrity and database for detecting posthumous insurance claims". Consultancy report to Center of Medicaid and Medicare Services. Acumen LLC/SPHERE Institute.

**Xie, S,** Zheng, H (2018), "Offshore incubator development in FTA and Bonded area" Hainan FTA initiative study, consultancy report to China Communications Construction Company; Municipal Government of Haikou, Cushman & Wakefield, Strategic Consulting, Guangzhou, China

**Xie, S** (2018), "Urban redevelopment and rural preservation in Guangdong Province", Litanba renewal project, consultancy report to Municipal government of Meizhou and Trust King urban renewal group, Cushman & Wakefield, Strategic Consulting, Guangzhou, China

**Xie, S,** Chen, V, Zheng, H. et. Al. (2018), "Recreational and healthcare themed town development" in urban development and real estate investment planning, consultancy report to Riverside Group and Six Flags Entertainment Corporation, Cushman & Wakefield, Strategic Consulting, Guangzhou, Beijing, Chengdu, Hangzhou, Shanghai, China

**Xie, S,** Chen, V. (2017), "Continue care and recreational community in Southern China", consultancy report to Yuexiu Holding, Ltd. Cushman & Wakefield, Strategic Consulting, Guangzhou, China

## Honors and Grants

2025	Handshake	MOVE AI Fellowship (\$5000): Geography/Demography Domain Expert
Pending	NIH	Mapping Mortality Over Time: Building Stable Geographic Units for Longitudinal Health Research
Pending	Russel Sage Foundation	The changing geography of racial wealth inequality, 1960-2022
2022	ASU GPSA	Travel grant (\$350)
2021	ASU Graduate School	Travel award (\$1000)
2019	ASU SGSUP	Research symposium presentation award (2nd prize)
2015	University of Washington	Study abroad travel grant (\$5000)
2012-2015	University of Washington	Dean's List

Teaching Experience

Arizona State University

Graduate Teaching Associate • Tempe, AZ • August 2018 to November 2022

- Facilitated the following courses: Urban Economic Development (2018, Graduate seminar), World regions (2018-2022), Population Geography (2019-2022), International Crisis (2020-2022).
- Designed, led, and assessed guest lectures, class activities, assignments, and projects for population growth theories, population geography, and regional geography of East Asia.
- Designed instruction plan, class presentation, instruction video and public lecture for population data access and analysis.
- Mentored two undergraduate honor’s theses.

Seattle Central College

Tutor • Seattle, WA • January 2015 to December 2015

- Offered career consultation services, providing guidance on job search, resume building, and interview preparation.
- Assisted 13 refugee students with their English reading, writing, and speaking through personalized tutoring sessions.

Other Professional Experience

Cushman & Wakefield

Assistant Manager • Guangzhou, China • December 2017 to July 2018

- Led a six-person team in delivering strategic consulting services to city governments and private corporations.
- Advised on eight urban development projects, including Yuexiu retirement community development, Haikou Free Trade Area TOD urban complex, and Six Flags Park China.

Service Experience

Ongoing	Journal Reviewer	BMC Public Health, Demography, Sociology of Race and Ethnicity, Humanities and Social Sciences Communications
2020–2021	COVID and anti-racism focus group	ASU SGSUP JEDI committee
2019	Conference Assistant	American Association of Geographers
2018–2019	International student coordinator	ASU SGSUP Grad student committee
2013–2015	Social Media Editor	UW Husky Help Organization

Affiliations

Population Program, Institute of Behavioral Science  
Population Association of America  
Association of American Geographers  
Regional Science Association International

Skills

**Areas of Expertise:** GeoHealth, Demography, Public Health, Regional Economy, Machine Learning, Geospatial Analysis,  
**Data Analysis:** Google Data Analytics Certificate, R, SAS, Python, SQL, Tableau, SPSS, FSQCA, MS excel.  
**Spatial Analysis:** ArcGIS Series, Google Map API, Geoda, FRAGSTAT  
**Language:** Mandarin Chinese (proficient), English (proficient), Modern Greek (basic communication)