Su Yeon Han

Su Yeon Han, Ph.D.
Assistant Professor
Department of Geography & Environmental Studies
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EDUCATION

Doctor of Philosophy   September, 2016

- Department of Geography, Joint Doctoral Program
  San Diego State University and University of California Santa Barbara
- Advisor: **Dr. Ming-Hsiang Tsou**
- Ph.D Dissertation Title: Discovering Spatiotemporal Relationships
  between Cyberspace and Real Space and Re-examining Theories in
  Geography with Social Media and Big Data

Master of Science   December, 2012

- The University of Illinois at Urbana Champaign
- Department of Geography and Geographic Information Science
- Advisor: **Dr. Shaowen Wang**
- Master's Thesis Title: A CyberGIS Environment for Spatiotemporal
  Analysis: A Case Study of China Mortality Data

Bachelor of Arts   December, 2009

- The University of North Carolina at Chapel Hill
- Geography Major (Geographic Information Science concentration)
  Computer Science Minor

POSITIONS AND EMPLOYMENT

From Aug 2022	**Assistant Professor** Department of Geography & Environmental Studies Texas State University
Jan 2021 to July 2022	**Teaching Assistant Professor** **Director of Undergraduate Studies** Department of Geography and Geographic Information Science **Research Fellow** CyberGIS Center for Advanced Digital and Spatial Studies Leader of the Research Team: CyberGIS-Viz and Social Media

University of Illinois at Urbana-Champaign
Worked on on projects below:
- [Development and Validation of Regional Models of HIV Vulnerabilities and Solutions](#) with **PIs: Dr. Dolores Albarracin and Dr. Sally Chan**

May 2020 to Jan 2021   **Post-doctoral Research Associate**
CyberGIS Center for Advanced Digital and Spatial Studies
(Director: **Dr. Shaowen Wang**)
Worked on projects below:
- [Geospatial Fellows for Advancing COVID-19 Research & Education](#):
NSF funded project to conceptualize a [Geospatial Software Institute (GSI)](#)
with **PI: Dr. Shaowen Wang**

Dec 2019 to May 2020   **Post-doctoral Researcher**
Center for Human Dynamics in Mobile Ages
San Diego State University
(Director: **Dr. Ming-Hsiang Tsou**)

Dec 2017 to Dec 2019   **Post-doctoral Researcher**
Center for Geospatial Sciences
University of California, Riverside (Director: **Dr. Sergio Rey**)
Worked on two projects below:
- Project titled "Neighborhoods in Space-Time Context"
(https://spatial.ucr.edu/projects) Funding source: NSF funded projects
under Grant No. 1733705
- Project titled **"**New Approaches for Spatial Distribution Dynamics**"**
(https://spatial.ucr.edu/projects) Funding source: NSF funded projects
under Grant No. 1421935

Oct 2016 to Dec 2017   **Post-doctoral researcher**
Center for Human Dynamics in Mobile Ages
San Diego State University
(Director: **Dr. Ming-Hsiang Tsou**)
Worked on three projects below:
- Project titled, "Spatiotemporal Modeling of Human Dynamics
Across Social Media and Social Networks
(http://humandynamics.sdsu.edu/) Funding source: NSF funded projects
under Grant No. 141650
- Project titled "Integrated Stage-Based Evacuation with Social Perception
Analysis and Dynamic Population Estimation"
(https://decisionsupport.sdsu.edu/) Funding source: NSF funded projects
under Grant No. 1634641
- Project titled "Is it race, or place? Disentangling racial, socioeconomic
and geographic disparities in the cancer burden of San Diego and Imperial
counties" (http://graphers.sdsu.edu) Funding source: SDSU/UCSD
Cancer Comprehensive Partnership Pilot Study Program
(U54CA132384-06A1)

Aug 2012 to Aug 2016   **Research Assistant**
Center for Human Dynamics
Mobile Age in San Diego State University
(Director: **Dr. Ming-Hsiang Tsou**)

Worked on Two NSF funded projects below
- Grant No. 1028177, project titled "CDI-Type II: Mapping Cyberspace to Real space: Visualizing and Understanding the Spatiotemporal Dynamics of Global Diffusion of Ideas and the Semantic Web" (http://mappingideas.sdsu.edu/)
- Grant No.1416509, project titled, "Spatiotemporal Modeling of Human Dynamics Across Social Media and Social Networks" (http://humandynamics.sdsu.edu/)

Sep 2014 to May 2015   A member in an Information Observatory Investigating the Role of Space and Time for Knowledge Organization in University of California, Santa Barbara (http://stko.geog.ucsb.edu)

Aug 2010 to May 2012   **Research Assistant**
CyberInfrastructure and Geospatial Information Laboratory
University of Illinois at Urbana Champaign
(Director: **Dr. Shaowen Wang**)
Worked on NSF funded Cyber GIS project
website: https://cybergis.illinois.edu/

RESEARCH INTERESTS

- Natural Hazards, Environmental Justice, and Vulnerability Assessment
- Disaster Management and Response (with a focus on pandemics, hurricanes, wildfire, and heatwaves)
- Climate Change (e.g., impacts of excessive heat and drought on human mobility, urban heat island prediction)
- Human Mobility & Spatial Accessibility
- Health GIS (focusing on health disparities and social determinants of health)
- Neighborhood Dynamics
- Spatial Data Science, Spatial Big Data and Social Media Analytics
- Geovisualization and Visual Analytics
- Web-based GIS and CyberGIS
- Development of GIS-based Decision Support Tools to tackle real-world challenges

TEACHING EXPERIENCES

Texas State University:

2025 (Fall)   **Instructor**
GEO 7372: Seminar in Geographic Information Science (graduate, in-person)
    Topic: GIScience for Hazards, Vulnerability, and Resilience

GEO 3411: Maps and Map Making (Undergraduate, in-person)

2025 (Spring)   **Instructor**
GEO 7362: Geovisualization (graduate, in-person)
GEO 2426: Fundamentals of GIS (Undergraduate, in-person)

2024 (Fall)   **Instructor**

GEO 3411: Maps and Map Making (Undergraduate, in-person)
GEO 2426: Fundamentals of GIS (Undergraduate, in-person)

2024 (Spring)   **Instructor**
GEO 3411: Maps and Map Making (Undergraduate, in-person)
GEO 2426: Fundamentals of GIS (Undergraduate, in-person)

2023 (Fall)   **Instructor**
GEO 3411: Maps and Map Making (Undergraduate, in-person)
GEO 7361: Advanced GIS (Graduate, in-person)

2023 (Spring)   **Instructor**
GEO 3411: Maps and Map Making (Undergraduate, in-person)
GEO 7362: Geovisualization (graduate, in-person)

2022 (Fall)   **Instructor**
GEO 3411 Maps and Map Making(Undergraduate, in-person)

University of Illinois at Urbana Champaign:

2022 (Spring)   **Instructor**
GEOG 380: GIS II: Spatial Prob Solving (Undergraduate, in-person)
GEOG 517: Geospatial Visualization & Visual Analytics (Graduate, asynchronous online)

2021 (Fall)   **Instructor**
GEOG 205: Business Location Decisions (Undergraduate, in-person)
    - Made major updates on lectures and course materials
GEOG 380: GIS II: Spatial Prob Solving (Undergraduate, in-person))
    - Made major updates on lectures and course materials

2021 (Spring)   **Instructor**
GEOG 489: Programming for GIS (Undergraduate & Graduate, synchronous online)
    - Independently developed and taught lectures and labs
GEOG 517: Geospatial Visualization & Visual Analytics (Graduate, asynchronous online)

2020 (Fall)   **Instructor**
GEOG 517: Geospatial Visualization & Visual Analytics (Graduate, asynchronous online)
    - Independently developed and taught lectures and labs

San Diego State University:

2017 (Fall)   **Teaching Assistant**
GEOG 596: Big Data Science Analytics Platforms
    - Independently developed lab materials and taught them

2016 (Spring)	**Teaching Assistant** GEOG583: Internet Mapping and Distributed GIservices (Undergraduate & Graduate, in-person) Independently developed and taught Web GIS programming in the lab session. Students learned how to create interactive maps to display geospatial data in hands-on exercises
2015 (Fall)	**Teaching Assistant** GEOG381: Computerized Map Design (Undergraduate, in-person) Instructed the lab session. Students learned basics of ArcGIS Desktop in hands-on exercises

Other:

April 2022	Guest Lecturer at the Department of Geography and Environmental Studies, Texas State University, Lecture Title, "*Cartography Symbology*"
Feb 2017	Guest Lecturer at the Department of Geography, University of Denver, Lecture Title, "*Why Georeferencing Matters*"
April 2017	Guest Lecturer at the Department of Geography, University of Missouri at Columbia, Lecture Title, "*Web-based GIS Applications and Leaflet Tutorials*"
Feb 2017	Instructor & Organizer, BIG DATA HACKATHON, San Diego 2017
Oct 2015	Instructor & Organizer, BIG DATA HACKATHON, San Diego 2015

PUBLICATIONS

Peer-reviewed Journal Articles:

Han, Su Yeon, Yubin Lee, Jooyoung Yoo, Jeon-Young Kang, Jinwoo Park, Soe W. Myint, Eunsang Cho, Xin Gu, and Joon-Seok Kim. "Spatial Disparities in Fire Shelter Accessibility: Capacity Challenges in the Palisades and Eaton Fires." Sustainable Cities and Society (in review).

Xu, Jian, Ming-Hsiang Tsou, Claire Merson, **Su Yeon Han,** Jingfei Zhang, and Yanfang Su. "The Mismatch between COVID-19 Vaccination Implementation and Vulnerable Population: Spatiotemporal Analysis of Neighborhood-level COVID-19 Vaccination Rates in San Diego, California." Information Geography (2025): 100026.

Chan, Man-pui Sally, Bita Fayaz-Farkhad, **Su Yeon Han**, Jinwoo Park, Shaowen Wang, and Dolores Albarracin. "Ending the HIV Epidemic: Development and Evaluation of CyberGIS-HIV, a Web-Based Prediction Application." American Journal of Public Health 0 (2025): e1-e5.

Han, Su Yeon, Jooyoung Yoo, Alexander Michels, Jeon-Young Kang, Shaowen Wang, and Joon-Seok Kim. "Vulnerable Neighborhood Explorer (VNE): An Open-Source Visual Analytics Tool for Exploring Social Vulnerability to Disasters across Different Neighborhoods." SoftwareX 31 (2025): 102233.

Han, Su Yeon, Jooyoung Yoo, Alexander Michels, Jeon-Young Kang, Shaowen Wang,

and Joon-Seok Kim. "Vulnerable Neighborhood Explorer (VNE): An Open-Source Visual Analytics Tool for Exploring Social Vulnerability to Disasters across Different Neighborhoods." SoftwareX 31 (2025): 102233.

Gu, Xin, Lin Liu, **Su Yeon Han**, Minxuan Lan, Hanlin Zhou, Debao Chen, and Zihan Su. "The impact of changing ambient population composition on crime during COVID-19 lockdowns." *Applied Geography* 180 (2025): 103649.

Jiang, Yuqin, **Su Yeon Han**, Zhenlong Li, Huan Ning, and Joon-Seok Kim. "Comparative analysis of human mobility patterns: utilizing taxi and mobile (SafeGraph) data to investigate neighbourhood-scale mobility in New York City." Annals of GIS (2025): 1-25.

Jiang, Yuqin, Yihong Yuan, and **Su Yeon Han**. "An entropy-based measurement for understanding origin-destination trip distributions: a case study of New York City taxis." Big Earth Data (2024): 1-30. DOI:10.1080/20964471.2024.2363548

Han, Su Yeon, Jeon‑Young Kang, Fangzheng Lyu, Furqan Baig, Jinwoo Park, Danielle Smilovsky, and Shaowen Wang. "A cyberGIS approach to exploring neighborhood‑level social vulnerability for disaster risk management." Transactions in GIS 27, no. 7 (2023): 1942-1958. DOI: 10.1111/tgis.13106

Park, Jinwoo, Alexander Michels, Fangzheng Lyu, **Su Yeon Han**, and Shaowen Wang. "Daily changes in spatial accessibility to ICU beds and their relationship with the case-fatality ratio of COVID-19 in the state of Texas, USA." Applied Geography 154 (2023): 102929. DOI:10.1111/tgis.13106

Lyu, Fangzheng, Shaohua Wang, **Su Yeon Han**, Charlie Catlett, and Shaowen Wang. "An integrated cyberGIS and machine learning framework for fine-scale prediction of Urban Heat Island using satellite remote sensing and urban sensor network data." *Urban Informatics* 1, no. 1 (2022): 1-15. DOI: 10.1007/s44212-022-00002-4

Rey, Sergio, **Su Yeon Han**, Wei Kang, Elijah Knaap, and Renan Xavier Cortes. "A Visual Analytics System for Space–Time Dynamics of Regional Income Distributions Utilizing Animated Flow Maps and Rank‑based Markov Chains." *Geographical Analysis* 52, no. 4 (2020): 537-557. DOI: 10.1111/gean.12239

Kang, Wei, Sergio Rey, Levi Wolf, Elijah Knaap, and **Su Yeon Han**. "Sensitivity of sequence methods in the study of neighborhood change in the United States." *Computers, Environment and Urban Systems* 81 (2020): 101480. DOI: 10.1016/j.compenvurbsys.2020.101480

Han, Su Yeon, Sergio Rey, Elijah Knaap, Wei Kang, and Levi Wolf, "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, no.11 (2019): 509. DOI: 10.3390/ijgi8110509

Han, Su Yeon, Ming-Hsiang Tsou, Elijah Knaap, Sergio Rey, and Guofeng Cao. "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, no. 2 (2019): 51. DOI: 10.3390/urbansci3020051

Han, Su Yeon, Ming-Hsiang Tsou, and Keith C. Clarke. "Revisiting the death of geography in the era of Big Data: the friction of distance in cyberspace and real space." *International Journal of Digital Earth* 11.5 (2018): 451-469. DOI:10.1080/17538947.2017.1330366

Yang, Jiue-An, Ming-Hsiang Tsou, Chin-Te Jung, Christopher Allen, Brian H. Spitzberg, Jean Mark Gawron, and **Su-Yeon Han**. "Social media analytics and research testbed (SMART): Exploring spatiotemporal patterns of human dynamics with geo-targeted social media messages." *Big Data & Society* 3, no. 1 (2016): 2053951716652914. DOI:10.1177/2053951716652914

Han, Su Yeon, Ming-Hsiang Tsou, and Keith C. Clarke. "Do Global Cities Enable Global Views? Using Twitter to Quantify the Level of Geographical Awareness of US Cities." *Plos One* 10, no. 7 (2015): e0132464. DOI: 10.1371/journal.pone.0132464

Tsou, Ming-Hsiang, Ick-Hoi Kim, Sarah Wandersee, Daniel Lusher, Li An, Brian Spitzberg, Dipak Gupta, Jean Gawron, Jennifer Smith , Jiue-An Yang, **Su Yeon Han**. "Mapping ideas from cyberspace to realspace: visualizing the spatial context of keywords from web page search results." *International Journal of Digital Earth* 7, no. 4 (2014): 316-335. DOI: 10.1080/17538947.2013.781240

Nagel, Anna C., Ming-Hsiang Tsou, Brian H. Spitzberg, Li An, J. Mark Gawron, Dipak K. Gupta, Jiue- An Yang, **Su Yeon Han**, K Michael Peddecord, Suzanne Lindsay, and Mark H Sawyer. "The complex relationship of realspace events and messages in cyberspace: case study of influenza and pertussis using tweets." *Journal of medical Internet research* 15, no. 10 (2013): e237. DOI: 10.2196/jmir.2705

Tsou, Ming-Hsiang, Jiue-An Yang, Daniel Lusher, **Su Yeon Han**, Brian Spitzberg, Jean Mark Gawron, Dipak Gupta, and Li An. "Mapping social activities and concepts with social media (Twitter) and web search engines (Yahoo and Bing): a case study in 2012 US Presidential Election." *Cartography and Geographic Information Science* 40, no. 4 (2013): 337-348. DOI: 10.1080/15230406.2013.799738

Non-peer-reviewed Journal Articles:

Elijah Knaap, Levi Wolf, Sergio Rey, Wei Kang, and **Su Yeon Han**. "The Dynamics of Urban Neighborhoods: A Survey of Approaches for Modeling Socio-Spatial Structure." (2019). DOI: 10.31235/osf.io/3frcz

Peer-reviewed Book Chapters:

Lyu, Fangzheng, Jeon-Young Kang, Shaohua Wang, **Su Yeon Han**, Zhiyu Li, and Shaowen Wang. "Multi-scale CyberGIS Analytics for Detecting Spatiotemporal Patterns of COVID-19." In *Mapping COVID-19 in Space and Time*, pp. 217-232. Springer, Cham, 2021. DOI: 10.1007/978-3-030-72808-3_11

Peer-reviewed Conference Papers:

Su Yeon Han, Jeon-Young Kang, Züfle Andres, Joon-Seok Kim. Mapping HIV Vulnerability: The Role of PrEP Accessibility and Economic Inequality in Atlanta, Georgia. *In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Geospatial Computing for Public Health (GeoHealth 2025)*, Minneapolis, Minnesota, October 2024 (Accepted)

Joon-Seok Kim, Jooyoung Yoo, **Su Yeon Han**, Züfle Andres. An Agile Design of Activity-based Mobility Intervention using Large Language Models. *In Proceedings of the 8th ACM SIGSPATIAL International Workshop on GeoSpatial Simulation (GeoSim 2025)*, Minneapolis, Minnesota, October 2024 (Accepted)

Su Yeon Han, Joon-Seok Kim, Yuqin Jiang, Jeon-Young Kang, Jinwoo Park, Chaeyeon Han, Alexander Michels, and Shaowen Wang. CyberGIS-Vis for Democratizing Access to Scalable Spatiotemporal Geovisual Analytics: A Case Study of COVID-19. *In Proceedings of the 5th ACM SIGSPATIAL International Workshop on Spatial Computing for Epidemiology (SpatialEpi'24)*, Atlanta, Georgia, October 2024, pp. 19-22, doi: 10.1145/3681777.3698474

Baig, Furqan, Alexander Michels, Zimo Xiao, **Su Yeon Han**, Anand Padmanabhan, Zhiyu Li, and Shaowen Wang. "CyberGIS-Cloud: A unified middleware framework for cloud-based geospatial research and education." *In Practice and Experience in Advanced Research Computing*, pp. 1-4. 2022. DOI: 10.1145/3491418.3535148

Park, Jaehee, Hao Zhang, **Su Yeon Han,** Atsushi Nara, and Ming-Hsiang Tsou. "Estimating Hourly Population Distribution Patterns at High Spatiotemporal Resolution in Urban Areas Using Geo-Tagged Tweets and Dasymetric Mapping." In *11th International Conference on Geographic Information Science (GIScience 2021)-Part I*. Schloss Dagstuhl-Leibniz-Zentrum für Informatik, 2020. DOI: 10.4230/LIPIcs.GIScience.2021.I.10

Rey, Sergio, Elijah Knaap, **Su Yeon Han**, Levi Wolf, and Wei Kang. Spatio-temporal analysis of socioeconomic neighborhoods: The Open Source Longitudinal Neighborhood Analysis Package (OSLNAP). *In Proceedings of the 17th Python in Science Conference*, pp.121–128, 2018. DOI: 10.25080/Majora-4af1f417-012.

Han, Su Yeon, Keith C. Clarke, and Ming-Hsiang Tsou. Animated Flow Maps for Showing Human Movement: Two Demonstrations with Air Traffic and Twitter Data. *In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Analytics for Local Events and News (LENS 2017),* Redondo Beach, California, November, 2017. DOI: 10.1145/3148044.3148049 (Download the paper here to see the animations: https://su-gis.org/download/AniFlow.pdf)

Tsou, Ming-Hsiang, Chin-Te Jung, Chris Allen, Jiue-An Yang, **Su Yeon Han**, Brian H. Spitzberg, and Jessica Dozier. "Building a Real-Time Geo-targeted Event Observation (Geo) Viewer for Disaster Management and Situation Awareness." *28th International Cartographic Conference(ICC) of the International Cartographic Association*, 2017 DOI: 10.1007/978-3-319-57336-6_7

Tsou, Ming-Hsiang, Chin-Te Jung, Chris Allen, Jiue-An Yang, Jean-Mark Gawron, Brian H. Spitzberg, and **Su Yeon Han**. "Social media analytics and research test-bed (SMART dashboard)." *In Proceedings of the 2015 International Conference on Social Media & Society*, p. 2. ACM, 2015. DOI: 10.1145/2789187.2789196

Ye, Fei, Xuan Shi, Shaowen Wang, Yan Liu, and **Su Yeon Han**. "Spherical interpolation over graphic processing units." In *Proceedings of the ACM SIGSPATIAL Second International Workshop on High Performance and Distributed Geographic Information Systems*, pp. 38-41. ACM, 2011. DOI: 10.1145/2070770.2070777

Conference Papers (Abstract Accepted):

Han, Su Yeon, Joon-Seok Kim, Yuqin Jiang. "CyberGIS-enabled geovisual analytics for

Exploring Longitudinal Neighborhood Change," Abstract accepted to *Joint Meeting of South West American Association of Geographers (SWAAG) & Applied Geography Conference(AGX)*, San Marcos, October 2024.

Lidia Roy, **Su Yeon Han**, "Spatio-temporal Analysis of Domestic Violence in Austin, TX (2012-2023)," Abstract accepted to *Joint Meeting of South West American Association of Geographers (SWAAG) & Applied Geography Conference(AGX)*, San Marcos, October 2024.

Han, Su Yeon, Ming-Hsiang Tsou, Elijah Knaap, Sergio Rey. "How Do Cities Flow in an Emergency? Tracing Human Mobility Patterns during a Natural Disaster with Big Data and Spatial Data Science." Abstract accepted to *49th Annual Urban Affairs Conference*, Los Angeles, April 2019

Knaap, Elijah, Sergio Rey, Levi Wolf, **Su Yeon Han**, Wei Kang. **"**OSNAP! Introducing the Open-Source Neighborhood Analysis Package" Abstract accepted to *49th Annual Urban Affairs Conference*, Los Angeles, April 2019

Tsou, Ming-Hsiang, **Su Yeon Han,** Atushi Nara, Joseph Gibbons and Caroline A. Thompson. "Building a Lightweight Web Mapping and Analytic Application for Visualizing Health Disparities." Extended Abstract accepted to *CPGIS Annual Conference 2017*, Buffalo, New York, August 2017.

Han, Su Yeon and Ming-Hsiang Tsou, Dynamic Population Mapping Using Social Media Data (Twitter). Extended Abstract accepted to *AutoCarto 2016,* Albuquerque, New Mexico, September 2016.

Han, Su Yeon, Using Social Media (Twitter) to Reveal Human Mobility Patterns in Different Cities. Extended Abstract accepted to *International Conference on Location-Based Social Media Data*, Athens, GA, March 2015.

Ph.D Dissertation:

Han, Su Yeon, "Discovering Spatiotemporal Relationships between Cyberspace and Real Space and Re- examining Theories in Geography with Social Media and Big Data" Ph.D. Dissertation, San Diego State University and University of California Santa Barbara, 2016

Master's Thesis:

Han, Su Yeon. "A CyberGIS Environment for Spatiotemporal Analysis: A Case Study of China Mortality Data." M.S. Thesis, University of Illinois at Urbana-Champaign, 2012

Manuscripts in Progress:

Xu, Jian, Claire Merson, **Su Yeon Han**, Jingfei Zhang, Yanfang Su, and Ming-Hsiang Tsou (Submitted / Under Review). The Mismatch between COVID-19 Vaccination Implementation and Vulnerable Population: Spatiotemporal Analysis of Neighborhood-level COVID-19 Vaccination Rates in San Diego, California. Social Science & Medicine.

Chan, Man-pui Sally, Bita Fayaz-Farkhad, **Su Yeon Han**, Jinwoo Park, Shaowen Wang

and Dolores Albarracin (Submitted / Under Review). Ending the HIV Epidemic: Development and Evaluation of CyberGIS-HIV, A Web-Based Prediction Application. American Journal of Public Health.

Han, Su Yeon, Yuqin Jiang and Joonseok Kim. Spatial accessibility to HIV Testing, Treatment, and Prevention Services in Atlanta, Georgia (in preparation)

Han, Su Yeon and Yuqin Jiang. CyberGIS Approach to Exploring Longitudinal Neighborhood Change: A Case Study of Harris County, Houston (in preparation)

Han, Su Yeon, Jinwoo Park, Chaeyeon, Bita Fayaz Farkhad, Man-pui Sally Chan, Dolores Albarracin, Han, Shaowen Wang. CyberGIS-HIV for visualizing and predicting spatiotemporal patterns of HIV rates in US (in preparation)

INVITED TALK

Han, Su Yeon, Open-Source Spatiotemporal Geovisual Analytics with CyberGIS-Vis: A COVID-19 Case Study, I-GUIDE's Virtual Consulting Office (Online), June 2025.

Han, Su Yeon, Recent Advances in CyberGIS-VIS for Democratizing Access to Scalable Geovisualization. *Texas State University,* San Marcos, April 2022.

Han, Su Yeon, Recent Advances in CyberGIS-VIS for Democratizing Access to Scalable Geovisualization. *Virginia Tech,* Blacksburg, March 2022.

Han, Su Yeon, Recent Advances in CyberGIS-VIS for Democratizing Access to Scalable Geovisualization. *University of Wisconsin Madison,* Madison, March 2022.

Han, Su Yeon, How Do Cities Flow in an Emergency? Tracing Human Mobility Patterns during a Natural Disaster with Big Data and Geospatial Data Science. *University of Connecticut,* Storrs, January 2020.

Han, Su Yeon, How Do Cities Flow in an Emergency? Tracing Human Mobility Patterns during a Natural Disaster with Big Data and Geospatial Data Science. *Florida International University,* Miami, April 2019.

Han, Su Yeon, Social media, Big Data and Web-based GIS. *University of New Mexico,* Albuquerque, Feb 2019.

Han, Su Yeon, Social media, Big Data and Web-based GIS. *University of Tennessee,* Knoxville, Feb, 2019.

Han, Su Yeon, Social media, Big Data and Web-based GIS applications. *University of Utah,* Salt Lake City, Dec 2018.

Han, Su Yeon, The Use of Social Media, Big Data and Web-based GIS for Disaster Response and Management. The *University of North Carolina at Greensboro,* Greensboro, North Carolina, Feb 2018.

Han, Su Yeon, Social Media, Big Data and Web-based GIS. *Geographical Information Science Research Seminar, Department of Geography at McGill University, Canada*, January 2018.

Han, Su Yeon, Discovering Spatiotemporal Relationships between Cyberspace and Real Space and Re-examining Theories in Geography with Social Media and Big Data & Web-based GIS. *University of Missouri at Columbia,* Columbia, Missouri, April 2017.

Han, Su Yeon, Discovering Spatiotemporal Relationships between Cyberspace and Real Space and Re-examining Theories in Geography with Social Media and Big Data & Web-based GIS. *University of Denver Geography Colloquium,* Denver, Colorado, Feb 2017.

PRESENTATIONS

Md Munir Mahmud, Soe Win Myint, Yuanhui Zhu, **Su Yeon Han**, Eunsang Cho, Examining the Recent Outrageous Wildfire in Los Angeles Using Remote Sensing and Machine Learning, Advancing Earth and Space Science (AGU25) Annual Meeting, New Orleans, LA, Dec 2025 (In Review)

Xin Gu, **Su Yeon Han**, Soe Win Myint, Eunsang Cho, Yuanhui Zhu, Joon-Seok Kim, Exploring Dynamic Human Mobility of Diverse Social Groups Under Heat Conditions: A Simulation-Based Approach. I-GUIDE Forum 2025: Geospatial AI and Innovation for Sustainability Solutions, Chicago, Illinois, June 2025.

Xin Gu, Lin Liu and **Su Yeon Han**, Exploring the Impact of Changing Population Composition on Crime, *Annual Meeting of the Association of American Geographers*. Detroit, Michigan, March 2025.

Yuqin Jiang, Zhenlong Li, Joon-Seok Kim, Ning Huan and **Su Yeon Han,** Comparative Analysis of Human Mobility Patterns: Utilizing Taxi and Mobile (SafeGraph) Data to Investigate Neighborhood-Scale Mobility in New York City, *Annual Meeting of the Association of American Geographers*. Detroit, Michigan, March 2025.

Su Yeon Han, Joon-Seok Kim, Yuqin Jiang, Jeon-Young Kang, Jinwoo Park, Chaeyeon Han, Alexander Michels, and Shaowen Wang. CyberGIS-Vis for Democratizing Access to Scalable Spatiotemporal Geovisual Analytics: A Case Study of COVID-19. *(SpatialEpi'24)*, Atlanta, Georgia, October 2024, pp. 19-22, doi: 10.1145/3681777.3698474

Han, Su Yeon, Joon-Seok Kim, Yuqin Jiang, CyberGIS-enabled geovisual analytics for Exploring Longitudinal Neighborhood Change, Joint Meeting of SWAAG & AGX, San Marcos, October 7, 2024.

Roy, Lidia., **Su Yeon Han**, Spatio-Temporal Analysis Of Domestic Violence In Austin, TX (2012-2023), Joint Meeting of SWAAG & AGX, San Marcos, TX, October 7, 2024.

Han, Su Yeon, Yuqin Jiang , CyberGIS Approach to Exploring Longitudinal Neighborhood Change: A Case Study of Harris County, Houston**.** *Annual Meeting of the Association of American Geographers*. Hawaii, April 2024. DOI:10.13140/RG.2.2.31665.19041

Jiang, Yuqin, **Su Yeon Han,** An entropy-based measurement for understanding origin-destination trip distributions: a case study of New York City taxis**.** *Annual Meeting of the Association of American Geographers*. Hawaii, April 2024. DOI:10.1080/20964471.2024.2363548

Han, Su Yeon, A CyberGIS Approach to Exploring Neighborhood-level Vulnerability**.** *Annual Meeting of the Association of American Geographers*. Denver, April 2023. DOI:10.1111/tgis.13106

Han, Su Yeon, Chaeyeon Han, Furqan Baig, Mike Qin, Chang Liu, and Shaowen Wang. Recent

Advances in CyberGIS-Viz for Democratizing Access to Scalable Geovisualization. *Annual Meeting of the Association of American Geographers*. New York City, February 2022. DOI:10.13140/RG.2.2.11296.60164

Chaeyeon Han, **Su Yeon Han,** Furqan Baig, and Shaowen Wang. A CyberGIS-enabled Pandemic Warning System Using Social Media Data. *Annual Meeting of the Association of American Geographers*. New York City, February 2022. DOI:10.13140/RG.2.2.26396.09605

Han, Su Yeon, Jeon-Young Kang, Shaohua Wang, Fangzheng Lyu, Shaowen Wang. A CyberGIS Approach to Exploring Neighborhood-level COVID-19. *Annual Meeting of the Association of American Geographers*, Denver, CO, April 2021.

Han, Su Yeon. A CyberGIS Approach to Exploring Neighborhood-level COVID-19 Vulnerability. *COVID-19 Webinar hosted by the Cyberinfrastructure Specialty Group (CISG)*. Online. October 2020.

Han, Su Yeon. Visual Analytics in CyberGISX. *Technical Workshops: Geospatial Fellows for Advancing COVID-19 Research & Education*. Online. October 2020.

Han, Su Yeon, Ming-Hsiang Tsou, Elijah Knaap, Sergio Rey. "How Do Cities Flow in an Emergency? Tracing Human Mobility Patterns during a Natural Disaster with Big Data and Spatial Data Science." *49th Annual Urban Affairs Conference*, Los Angeles, April 2019

Knaap, Elijah, Sergio Rey, Levi Wolf, **Su Yeon Han**, Wei Kang. **"**OSNAP! Introducing the Open-Source Neighborhood Analysis Package" *49th Annual Urban Affairs Conference*, Los Angeles, April 2019

Han, Su Yeon, Sergio Rey, Elijah Knapp, Wei Kang, Levi Wolf. Adaptive Choropleth Mapper: A Web-based Tool for Synchronous Exploration of Multiple Variables at Multiple Spatial Scales. *115th Annual Meeting of the Association of American Geographers*, Washington DC, April 2019

Wei Kang, Sergio Rey, Levi Wolf, Elijah Knaap, **Su Yeon Han**. Fishing for Neighborhood Trajectory Patterns in the United States – A Comparison of Sequence Analysis Methods. *65th Annual North American Meetings of the Regional Science Association International*, San Antonia, Texas, November 2018

Han, Su Yeon, A Web-based GIS Application for Longitudinal Neighborhood Analysis. *GIS day, University of California at Riverside,* Riverside, California, October 2018

Rey, Sergio, Elijah Knaap, **Su Yeon Han**, Levi Wolf, and Wei Kang. Spatio-temporal Analysis of Socioeconomic Neighborhoods: The Open Source Longitudinal Neighborhood Analysis Package (OSLNAP). *Scipy 2018*, Austin, Texas, July 2018

Han, Su Yeon, Keith C. Clarke, and Ming-Hsiang Tsou. Animated Flow Maps for Showing Human Movement: Two Demonstrations with Air Traffic and Twitter Data. *1st ACM SIGSPATIAL International Workshop on Analytics for Local Events and News (LENS 2017),* Redondo Beach, California, November 2017

Tsou, Ming-Hsiang, Hao Zhang, Atsushi Nara and **Su Yeon Han**. Estimating Hourly Population Distribution Change at High Spatiotemporal Resolution in Urban Areas using Geo-tagged Tweets and Dasymetric Maps, *2017 2nd International Symposium on Spatiotemporal* Computing at Harvard University, Cambridge, Massachusetts, August 2017.

Han, Su Yeon and Ming-Hsiang Tsou, A Highly Interactive and User-Friendly Web GIS Application for Real-Time Visualization of Social Media Data: A Case Study of Disaster Monitoring and Response during Wildfire in San Diego, 2017 *Summer Specialist Meeting (Workshop) Social Media Analytics and Decision Support Systems: Applications to Public Health and Crisis Management*, San Diego, California, August 2017

Han, Su Yeon and Ming-Hsiang Tsou, Estimating and Mapping Dynamically Changing Population using Twitter Data, 2017 *113th Annual Meeting of the Association of American Geographers*, Boston, April 2017

Han, Su Yeon, Tsou, Ming-Hsiang, Atushi Nara, Joseph Gibbons and Caroline A. Thompson; An Interactive Web-based GIS for Visualizing the Correlation Between Different Types of Chronic Diseases and Socioeconomic and Demographic Factors. *Hackathon,* San Diego, Feb 2017

Han, Su Yeon, Discovering Spatiotemporal Relationships between Cyberspace and Real Space and Re-examining Theories in Geography with Social Media and Big Data. *San Diego State University Colloquium,* San Diego, California, Dec 2016.

Han, Su Yeon and Ming-Hsiang Tsou, Dynamic Population Mapping Using Social Media Data (Twitter). *AutoCarto 2016,* Albuquerque, New Mexico, September 2016.

Tsou, Ming-Hsiang, **Su Yeon Han**, Atushi Nara, Joseph Gibbons and Caroline A. Thompson; An Interactive Web Mapping Tool for Visualizing Cancer Disparity with Socioeconomic Variables. *Conference on Geospatial Approaches to Cancer Control and Population Sciences*, Bethesda, Maryland, September 2016

Han, Su Yeon, Ming-Hsiang Tsou, Atushi Nara, Joseph Gibbons and Caroline A. Thompson; Web-based Geo Visualization Application for Mapping Cancer Mortality Rates in San Diego County.*2016 Summer Specialist Meeting (Workshop) Human Dynamics and Big Data*, San Diego, California, August 2016

Han, Su Yeon, Ming-Hsiang Tsou, and Keith C. Clarke ; Using Social Media (Twitter) to Measure the Effect of Distance Decay on Spatial Interaction between Cyberspace and Real space. The Spatial Analysis and Modeling (SAM) Student Paper Competition 2016, *112th Annual Meeting of the Association of American Geographers*, San Francisco, California, April 2016

Han, Su Yeon; Exploring Social Media Data (Twitter): Estimating the Level of Geographical Awareness and Visualizing Human Travel Patterns of Twitter Users in Different US Cities. *UCSB Geography Colloquium, Santa Barbara, California, April 2015.*

Han, Su Yeon, Ming-Hsiang Tsou, and Keith C. Clarke ; Global Cities enable Global Views? Using Social Media (Twitter) to Quantify the Level of Geographical Awareness for Their Users in Different Cities, AAG GIS Specialty Group Honors Student Paper Competition 2015, *111th Annual Meeting of the Association of American Geographers*, Chicago, Illinois, April 2015.

Han, Su Yeon, Ming-Hsiang Tsou, and Keith C. Clarke ; A CyberGIS for Dynamic Heatmap: Exploring the Level of Geographical Awareness Using Social Media Data (Twitter), Robert Raskin CyberGIS Student Competition Finalist Oral Presentation, *111th Annual Meeting of the Association of American Geographers*, Chicago, Illinois, April 2015.

Han, Su Yeon; Using social media (Twitter) to reveal human mobility patterns in different cities, *International Conference on Location-Based Social Media Data*, Athens, Georgia, March 2015.

Han, Su Yeon; Collecting Tweets Using Streaming API and Data Filtering, Workshop in *International Conference on Location-Based Social Media Data*, Athens, Georgia, March 2015.

Chin-Te Jung, Chris Allen, **Su Yeon Han**, Tsou, Ming-Hsiang; A Geo-Targeted Search Tool for Analyzing Twitter Messages, *GIS day, Department of Geography at University of California, Santa Barbara, November 2014*

Han, Su Yeon; Spatiotemporal Change of Geographical Awareness in U.S.: Knowledge Discovery from Social Media Messages and Big Data. *110th Annual Meeting of the Association of American Geographers*, Tampa, Florida, April 2014.

Han, Su Yeon; The Variety of Analyzing and Visualizing the Spatial Distribution of Web Pages and Social Media (Twitter). *109th Annual Meeting of the Association of American Geographers*, Los Angeles, LA, April 2013.

Han, Su Yeon, Shaowen Wang; Web based GIS application empowered by visual data exploration and spatial analysis for public health practitioners. *108th Annual Meeting of the Association of American Geographers*, New York, NY, February 2012.

POSTERS

Lidia Roy, **Su Yeon Han**, Spatio-temporal Analysis of Domestic Violence in Austin, Texas (2012-2023). PANGEA conference, Texas State University, February 2025

Mike Qin, **Su Yeon Han**, Chaeyeon Han, Chang Liu, and Shaowen Wang. Application of Multi-scale geographically weighted regression (MGWR) on HIV. GIS day, University of Illinois at Urbana Champaign, November 2021

Yong Liang, Zhiyu Li, Nattapon Jaroenchai, Anand Padmanabhan, **Su Yeon Han**, Shaohua Wang, Shaowen Wang. WhereCovid-19 Space-Time Explorer Web App. GIS day, University of Illinois at Urbana Champaign, November 2020

Ben Liebersohn, **Su Yeon Han**, Mike Qin, Yuchen Zhang, Bin Peng. Social Media and Visualization: Human Mobility During a Pandemic: Chicago and the Illinois Stay At Home Order. GIS day, University of Illinois at Urbana Champaign, November 2020

Han, Su Yeon, Ming-Hsiang Tsou, Atushi Nara, Joseph Gibbons, Sindana Ilango, Carolina Thompson. A Web-based Geographic Information System (GIS) for Visualizing Cancer Disparity with Socioeconomic and Demographic Variables. *The Partnership's annual Program Steering Committee (PSC) meeting at San Diego State University*, San Diego, California, March 2017

Sindana Ilango, Katy Torres, Vaishali Doshi, Chelsea Obrochta, Ming-Hsiang Tsou, Atsushi Nara, Joseph Gibbons, **Su Yeon Han**, Scarlett Gomez, Salma Shariff-Marco, Caroline A. Thompson. A Systematic Review of Research Utilizing Geospatial Analytic Approaches to Describe and Understand the Burden of Screening-Detectable Cancers in the United States, *Conference on Geospatial Approaches to Cancer Control and Population Sciences*, Bethesda, Maryland, September 2016

Han, Su Yeon, Ming-Hsiang Tsou, Katy Torres, Atsushi Nara, Joseph Gibbons, Vaishali Doshi, Sindana Ilango, Carolina Thompson. Web-based Geo-Visualization Application for Mapping Cancer Mortality Rates in San Diego County, ESRI International User Conference, San Diego, California, June 2016

Ming-Hsiang Tsou, Chine-Te Jung, Christopher T. Allen, Jiue-An J. Yang, **Su Yeon Han**, Brian H. Spitzberg, and Jessica Dozier. Geo-targeted Event Observation Viewer (GeoViewer) for Situation Awareness with Advanced Mapping and Visualization Functions, Social Media & Society 2016 International Conference, London, United Kingdom, July, 2016

Han, Su Yeon, Chris, Allen, Ming-Hsiang Tsou, Mapping Social Activities with Twitter: A Case Study in 2012 US Presidential Election, ESRI International User Conference, San Diego, California, June 2013

GRANT PROPOSAL WRITING EXPERIENCES

Dec 2023   **Agency Name:** Texas State University
Program Title: TXST CADS Catalyst Research Grant
Project Title: A Data-Driven Exploration of Urban Expansion and Social Inequality
PI: Su Yeon Han
Request Amount: $4,000
Result: no success

Oct 2023   **Agency Name:** Texas State University
Program Title: Research Enhancement Program (REP)
Project Title: The Growing Pains of Austin: Urban Development and Its Implications
     —A Study on Social Inequality and Accessibility Amidst Rapid Expansion
PI/Co-PI: Su Yeon Han (PI), Yihong Yuan (Co-PI)
Request Amount: $16,000
Result: no success

Sep 2023   **Agency Name:** Coway Co., LTD
Project Title: Water-quality Information Systems Engineering (WISE)
PI/Co-PI: Su Yeon Han (Co-PI), Jun Kim (PI) and Xiaofan Xu (Co-PI)
Request Amount: $71,010
Result: no success

Oct 2022   **Agency Name:** Texas State University
Project Title: Research Enhancement Program (REP)
Project Title: A Web-based GIS for prompt identification of socially vulnerable
     communities in the face of disasters: A case study of COVID-19 pandemic,
     Harris County, Houston, Texas
PI: Su Yeon Han
Request Amount: $8,000
Result: no success

Oct 2020   **Agency Name:** National Science Foundation (NSF)
Program Title: Cyberinfrastructure for Sustained Scientific Innovation (CSSI):
     Elements and Framework Implementations
Project Title: Frameworks: CyberGISX for Advancing Knowledge Frontiers of Social
     Resilience and Equity
PI/Co-PI: Su Yeon Han (Co-I) Shaowen Wang (PI), Guangqing Chi (Co-PI), Susan
     Paddock (Co-PI), Anand Padmanabhan (Co-PI), Ruby Mendenhall (Co-PI)
Result: no success

Oct 2019   **Agency Name:** Amazon
            Program Title: The Amazon Research Award (ARA)
            Project Title: Effective Retrieval and Visualization for Urgent Twitter Messages in
                Real-Time for Disaster Management
            PI: Dr. Amr Magdy (I am not an official PI because only professors are eligible for PI,
                but I took the lead on this proposal writing)
            Result: no success

JAN 2017   **Program Title**: SDSU/UCSD Cancer Comprehensive Partnership Pilot Study Program
                (U54CA132384-06A1)
            Project Title: Is it race, or place? Disentangling racial, socioeconomic and
                geographic disparities in the cancer burden of San Diego and Imperial
                counties
            PI: Dr. Caroline Thompson (I contributed to the proposal writing with my Ph.D advisor
                Dr. Ming Hsiang Tsou)
            Result: funded. Amount: $50,000

Sep 2016   **Agency Name:** National Science Foundation (NSF)
            Program Title: National Science Foundation, Humans, Disasters, and the Built
                Environment (HDBE)
            Project Title: Integrated Stage-Based Evacuation with Social Perception Analysis
                and Dynamic Population Estimation Program (Award no: 1634641)
            PI/Co-PI: Dr. Ming-Hsiang Tsou (PI), Atushi Nara (Co-PI), Xianfeng Yang (Co-PI),
                Sahar Ghanipoor Machiani (Co-PI) (I contributed to the proposal writing and was
                hired as a post-doc to work on this project once this project got funded)
            Result: funded. Amount: $465,189

Oct 2016   **Agency Name:** Amazon
            Program Title: The Amazon Research Award (ARA)
            Program Title: Search and Retrieve Urgent Twitter Messages for Disaster Response
                and **Project** Efforts in Real-Time
            PI: Dr. Ming-Hsiang Tsou (I was not an official PI because only professors are eligible
                for PI, but I took the lead on this proposal writing)
            Result: no success

May 2016   **Program Program**: Seoul Research Paper Contest for Utilizing Big Data, 2016
            Project Title: Exploring Spatiotemporal Human Movement Patterns during their
                Recreational Activities in Seoul, South Korea
            PI: Yong-Long Kim and **Su Yeon Han**
            Result: We were selected to receive mobile phone data at no cost from the Seoul
                Institute

Feb 2016   **Agency Name:** National Science Foundation (NSF)
            Program Title: Geography, and Spatial Sciences Program –   Doctoral Dissertation
                Research Improvement Awards.
            Project Title: Revisiting the Death of Geography in the Social Media Era: Using Social
                Media to Measure the Effect of Distance Decay on Spatial Interaction between
                Cyberspace and Real Space
            PI: Dr. Ming-Hsiang Tsou (I was not an official PI because only professors are eligible
                for PI, but I took the lead on this proposal writing)
            Result: no success

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HONORS AND AWARDS

- 2019 Travel Grant from Center for Geospatial Sciences at UCR ($1500)
- 2018 Travel Grant from Center for Geospatial Sciences at UCR ($1500)
- 2017 Travel Grant, 1st ACM SIGSPATIAL International Workshop on Analytics for Local Events and News, Redondo Beach, California, November 2017 ($950)
- 2017 Travel Grant, 112th Annual Meeting of the Association of American Geographers, Boston, Massachusetts, April 2017 ($700)
- 2016 Travel Grant, AutoCarto, Albuquerque, New Mexico, September 2016 ($700)
- 2016 3rd Place Best Paper for SAM: John Odland Award ($300)
- 2016 KSEA Paper Award 2016, Korean-American Association for Geospatial and Environmental Sciences ($400)
- 2016 Travel Grant, 112th Annual Meeting of the Association of American Geographers, San Francisco, California, April 2016 ($500)
- 2015 Jack & Laura Dangermond Geography Travel Scholarship ($500)
- 2015 Finalist Prize for Robert Raskin CyberGIS Student Competition
- 2015 Finalist Prize for GISSG Student Paper Competition ($500)
- 2015 Travel Grant, 111th Annual Meeting of the Association of American Geographers, Chicago, Illinois, April 2015. ($500)
- 2015 Travel Grant, International Conference on Location-Based Social Media Data, Athens, Georgia, March 2015
- 2014 Sim Travel Award Korea-America Association for Geospatial and Environmental Sciences ($500)
- 2014 Finalist Prize for the Honors Student Paper Competition in Cartography ($175)
- 2014 Travel Grant, 110th Annual Meeting of the Association of American Geographers, Tampa, Florida, April 2014 ($500)
- 2013 Travel Grant, 109th Annual Meeting of the Association of American Geographers, Los Angeles, LA, April 2013 ($500)
- 2012 Travel Grant, 108th Annual Meeting of the Association of American Geographers, New York, NY, February 2012 ($500)
- 2010 Student of the Year in CIGI (CyberInfrastructure and Geospatial Information Laboratory)
- 2010 Graduate student fellowship from University of Illinois at Urbana Champaign

PROJECT ACCOMPLISHMENT

This section only includes projects related to GIS software development. For all other research outcomes, please refer to the Publications section.

Title: CyberGIS-VIZ, 2025 (ongoing)
- Description: CyberGIS-Viz is an open-source software tool for interactive geospatial visualization and scalable visual analytics.
- Website: https://github.com/su-gis/CyberGIS-Vis
- Related Paper: https://doi.org/10.1145/3681777.3698474
- Technology used: Python, CyberGISX, and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)
- Role: Main Developer

Title: CyberGIS-HIV, 2022

- Description: CyberGIS-HIV is a Web-based GIS application that visualizes and predicts spatiotemporal patterns of HIV rates in US counties. On the graphical user interface, users can run the model on the fly. As an output of the model, spatiotemporal patterns of estimated HIV rates and key HIV predictors are visualized via the interactive coordinated and multiple views. CyberGIS-HIV enables forecasting how future HIV rates change as HIV predictors (e.g., Pre-exposure prophylaxis (or PrEP) use rate or HIV test rate) change.
- Website: https://su-gis.org/HIV
  Technology used: Python, R, CyberGISX, and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)
  Role: Main Developer

Title: Vulnerability Explorer: Discover Spatiotemporal Patterns of COVID-19 Spread and Impacts, 2020
- Description: It creates a visually appealing set of maps and charts that help (1) locate neighborhoods that have high infection rates of COVID-19 and (2) give insights into socioeconomic and demographic composition of neighborhoods that are vulnerable to COVID-19. This tool will help public health officials (1) to understand racial/ethnic and socioeconomic disparities in the COVID-19 outbreak and (2) to make decisions regarding where to distribute COVID-19 healthcare resources.
- Website: https://github.com/cybergis/VNE
- Presentation: My presentation is available from 22:20 in the video at the website of AAG Cyberinfrastructure Specialty Group
- Technology used: Python Open Source Packages (geosnap), JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap), Flask, Docker
- Role: Main Developer

Title: WhereCOVID-19, 2020
- Description: WhereCOVID-19 provides a collection of static and dynamic maps for estimating the spread and exposure risk of COVID-19 at various spatial and temporal scales.
- Website: https://wherecovid19.cigi.illinois.edu/
- Demo: https://tinyurl.com/ycn5fopg
- Technology used: JavaScript Libraries (Leaflet, Chart.js, Bootstrap), Flask, Docker
- Role: Group Member

Title: The GeoSpatial Neighborhood Analysis Package (GEOSNAP) 2019
- Website: https://github.com/suhanmappingideas/geosnap-viz
- Description: This is a Web-based GIS application where users can examine neighborhood changes across time and space by using race/ethnicity, socioeconomic and demographic data from census and American Community Survey through 3 steps: (1) Explore Data, (2) Neighborhood Delineation, and (3) Neighborhood Analysis. Users can run several spatial statistical methods for neighborhood analysis and visualize the results on multiple maps and various charts.
- Demo Videos for Jupyter Notebook version are available on the website (The link above).
- User's Manual: https://tinyurl.com/y2wqzra2
- Web-version: https://su-gis.org/OSNAP (Try with id: suhan@ucr.edu password: 159)
- Video1 (create, run and save analysis): https://su-gis.org/OSNAP/videos/Create_Save.mp4
- Video2 (share): https://su-gis.org/OSNAP/videos/OSNAP_Share.mp4
- Technology used: Javascript, Python, Flask, Jinja2, PostgreSQL, Javascript Libraries (Leaflet, D3, PlotlyJS,   geostats, Simple Statistics, jQuery, Bootstrap, AdminLTE), Jupyter Notebook
- Role: Main Developer

Title: Adaptive Choropleth Mapper (ACM), 2018

- Website: https://su-gis.org/ACM
- Description: Adaptive Choropleth Mapper (ACM) is an open-source mapping tool for the visualization of multiple choropleth maps which have novel features that conventional choropleth mapping tools do not have.
- Related Paper: DOI: 10.3390/ijgi8110509
- Technology used: Javascript Libraries (Leaflet, D3, geostats, Simple Statistics, Sweet Alert, jQuery)
- Role: Main Developer

Title: Longitudinal Neighborhood Explorer (LNE), 2018
- Website: https://su-gis.org/LNE
- Description: The user interface of Longitudinal Neighborhood Explorer (LNE) was designed to allow users to explore not only the temporal change of distributional patterns of each socioeconomic and demographic variable but also the difference in the distributional patterns of the different variables at tract-level in different metropolitan areas or counties in the U.S.
- Document: https://su-gis.org/LNE/intro.html
- Technology used: Javascript, Python, PostgreSQL, Javascript Libraries (Leaflet, D3, jQuery, geostats, Simple Statistics, Sweet Alert)
- Role: Main Developer

Title: A Visual Analytics System for the Space-Time Analysis of Income Dynamics, 2018
- Website: https://su-gis.org/RankPath4
- Document: https://su-gis.org/RankPath4/intro.html
- Video Demo: https://su-gis.org/STARS/images/RankPath.mp4
- Related Paper: DOI: 10.1111/gean.12239
- Technology used: Javascript, Python, Pysal, Javascript Libraries (Leaflet, PlotlyJS, Sweet Alert, jQuery)
- Role: Main Developer

Title: A Web-based Space-Time Analysis of Regional Systems: Exploratory Spatial Data Analysis, 2018
- Website: https://su-gis.org/STARS/ESDA.html
- Description: ESDA module in Web-STARS is a prototype for the dynamic exploratory analysis of data measured for areal units at multiple points in time
- Document: https://su-gis.org/STARS/ESDA_intro.html
- Video Demo: https://su-gis.org/STARS/images/ESDA.mp4
- Technology used: Javascript, Python, Pysal, Javascript Libraries (PlotlyJS, Sweet Alert, jQuery)
- Role: Main Developer

Title: SMART Dashboard2 2017
- Website: https://humandynamics.sdsu.edu/SMART2.0.html
- Description: SMART Dashboard 2.0 is a Web-based Social Media Analytic application to collect and visualize Twitter messages containing particular keywords in real-time. SMART 2.0 can be used for not only emergency response and monitoring but also for many other researchers who want to monitor social media about political issues and health-related issues.
- Tutorial: https://su-gis.org/SMART2/SMART2_Tutorial.pptx
- Technology used: Javascript, Python, MongoDB, NodeJS, Twitter API, JADE JavaScript Libraries (Leaflet, JQuery, D3, Dygraphs, Bootstrap)
- Role: Main Developer

Title: ReadySD Social (Mobile App), 2016
- Description: The ReadySD Social App is a mobile application that allows its users to receive and

retweet messages sent out by the County of San Diego Office of Emergency Management. It also allows its users to view, email, and go to the links of the emergency feed from the Office of Emergency Management.
- Video Demo: https://youtu.be/_IUP2VlgKjo
- Technology used: IONIC, AngularJS, AngularJS 2, NodeJS, MongoDB
- Role: Main Developer

Title: GeoViewer 1.1, 2017
- Website: https://humandynamics.sdsu.edu/GeoViewer.html
- Description: Geoviewer is a web-based social media mapping application to visualize location-based social media (Twitter) in various cities and locations.
- Video Demo: https://youtu.be/eJYTmi6McWc
- Technology used: Leaflet, Javascript, Python, MongoDB, NodeJS, Jade, Twitter API
Role: Main Developer

Title: San Diego Public Health Mapping Tool, 2016
- Chronic Disease: https://su-gis.org/HealthWebMapper/health.html
- Cancer: https://su-gis.org/HealthWebMapper
- Video Demo: https://su-gis.org/HealthWebMapper/demo
- Github Repository: https://github.com/HDMA-SDSU/HealthWebMapper
- Technical Document: https://su-gis.org/HealthWebMapper/Technical_Document.pdf
- Technology used: Leaflet, Javascript, Google Chart
- Role: Main Developer

Title: A CyberGIS for Dynamic Heatmap Visualization, 2015
- Related document: https://su-gis.org/geoawareness/documentation_SuHan.pdf
- Video Demo: https://su-gis.org/geoawareness/demo
- Website: https://su-gis.org/geoawareness
- Technology used: Leaflet, Javascript, Python, PostGIS, WebGL Heatmap, Twitter API
- Role: Main Developer

Title: CyberGIS – China CDC Mortality Database Visualization and Exploratory Data Analysis Service, 2012
- Website: http://14.36.39.124/ccdc/index2.html (currently not available)
- Paper: https://www.ideals.illinois.edu/handle/2142/42425
- Technology used: Cloud Computing, PHP, Javascript, Openlayers, PostGIS, ExtJS
Role: Main Developer

Title: CyberGIS – Parallel Viewshed Analysis, 2011
- Website: http://sandbox.cigi.illinois.edu/home/apps.php?app=viewshed (currently not available)
- Tutorial: https://wiki.cigi.illinois.edu/display/DOC/2.1+Viewshed+App
- Video Demo: https://youtu.be/pgl3wtRUAbE
- Technology used: Cuda, PHP, Javascript, Openlayers, Geoserver
- Role: Group Member

Title: CyberGIS - Parallel Inverse Distance Weighted (IDW) Interpolation, 2010
- Technology used: OpenMP, PHP, Javascript, Openlayers, Geoserver
- Role: Group Member

JOB EXPERIENCE

Jan 2012 to July 2014   Software Engineer at PathGeo (website : https://pathgeo.com/)

CEO: Dr. Ming-Hsiang Tsou
I developed mobile and Web based GIS applications in the company

SKILL SUMMARY

Geographic Information Systems
ArcGIS Desktop, ArcGIS Pro, ArcGIS Online, ArcGIS Insights, ArcGIS Server, QGIS, GRASS GIS, ERDAS IMAGINE, SaTScan, CrimeStat, GeoDa/PySAL, GISolve, GeoServer, Google Earth, Leaflet, OpenLayers, Carto, Mapbox

Programming & Web Development
Python, C, C++, Java, JADE, JavaScript, HTML/HTML5/XHTML, CSS, PHP, XML, Mobile development (IONIC & AngularJS)

Software & Visualization
Tableau, Adobe Illustrator, Adobe Photoshop, Camtasia

Development Environments
Jupyter Notebook, Spyder, PyCharm, Visual Studio Code, Eclipse, gcc/g++, CyberGISX

Data Science & Statistical Tools
Matlab, OriginLab

Frameworks & Platforms
Flask, Node.js

Database & Spatial Data Management
PostgreSQL/PostGIS, MySQL, MongoDB

SERVICES

Department/School:

- Member, Alumni Committee. (September 1, 2024 - May 15, 2026).
- Member, Evaluation Committee. (September 1, 2024 - May 15, 2026).
- Member, Graduate Committee. (September 1, 2023 - May 31, 2024).
- Member, Evaluation Committee. (September 1, 2022 - May 15, 2024).
- Member, Undergraduate Committee. (September 1, 2022 - May 15, 2023).

Professional:

Proposal Panel or Ad-hoc Review
- Reviewer / Referee, (April 2, 2024 - April 4, 2024).
Additional Comments: I served on a review panel for a NSF program for two days
- Reviewer / Referee, NATIONAL SCIENCE FOUNDATION. (February 27, 2023).
Additional Comments: I reviewed a proposal submitted to the U.S. National Science Foundation (NSF).
Peer reviewer for journals
- Big Earth Data

- Discover Public Health
- Journal of Computational and Geographical Statistics
- Journal of Planning Education Research
- International Journal of Geo-Information
- Cartography and Geographic Information Science
- International Journal of Geographical Information Science
- International Journal of Environmental Research and Public Health
- The Professional Geographer
- Sustainability
- Information
- Land
- Symmetry
- Geosciences
- Transactions in GIS
- Urban Planning
- Big Data Earth

Peer reviewer for conference papers

- Reviewer / Referee, ACM SIGSPATIAL 2025 International Workshop on Geospatial Computing for Public Health (GeoHealth), Minneapolis, United States (November 3, 2025 November 6, 2025).

- Reviewer / Referee, ACM SIGSPATIAL 2024 International Workshop on Spatial - Epidemiology, Atlanta, GA, United States (September 14, 2024 - October 31, 2024).

- Reviewer / Referee, ACM SIGSPATIAL 2023 International Workshop on Geosimulation, Hamburg, Germany, United States (September 15, 2023 - November 16, 2023).

Conference Services (session chair/organizer)

session name	role
2025 The 1st ACM SIGSPATIAL International Workshop on Geospatial Computing for Public Health (GeoHealth) in Minneapolis, MN, USA	co-chair
2024 AAG 2024 Symposium on Geospatial Data Science for Sustainability: CyberGIS and Spatial Decision Support System, in the Association of American Geographers Annual Meeting. Hawaii, HI, USA	chair
2017 Symposium on Human Dynamics in Smart and Connected Communities: Social Media and Big Data 1, in the Association of American Geographers Annual Meeting, Apr. 5-9, 2017, Boston, MA, USA	organizer
2017 2580 Symposium on Human Dynamics in Smart and Connected Communities: Social Media and Big Data 3, in the Association of American Geographers Annual Meeting, Apr. 5-9, 2017, Boston, MA, USA.	organizer
2012 Knowledge Discovery in Cyberspace and Social Media, in the Association of American Geographers Annual Meeting, Los Angeles, LA, April 2013.	organizer

Service Professional Development Activities Attended:

Workshop, "KSEA SCIENTISTS AND ENGINEERS EARLY CAREER DEVELOPMENT (SEED)," Korean-American Scientists and Engineers Association (KSEA), Dallas, United States. (August 1, 2023 - August 2, 2023).

STEP, "Scholarship and Teaching Excellence Program," Faculty Development, San Marcos, TX, United States. (August 30, 2022 - April 30, 2023).

NEWS AND PRESS

2018/07/24   People interacting more with near ones, despite digital revolution (My publication was featured at CNBC TV18) https://tinyurl.com/y4xmjqux

2018/07/23   People interacting more with near ones, despite digital revolution (My publication was featured at OrissaPOST) https://tinyurl.com/y5z4ok3r

2018/07/18   Despite Digital Revolution, Distance Still Matters (My publication was featured at Tech Xplore) https://tinyurl.com/y6gr65x9

2018/07/18   Despite Digital Revolution, Distance Still Matters (My publication was featured at ScienceDaily) https://www.sciencedaily.com/releases/2018/07/180718092454.htm

2018/07/02   Despite Digital Revolution, Distance Still Matters (My publication was featured at SDSU news)   http://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=77277

2015/08/17   Tweeting Far and Wide (My publication was featured at UCSB news) http://www.news.ucsb.edu/2015/015815/tweeting-far-and-wide

2015/08/05   Does Living in a Global City Make You More Globally Aware? (My publication was featured at CITY LAB, Bloomberg Media) https://www.citylab.com/life/2015/08/does-living-in-a-global-city-make-you-more-globally-aware/400247

STUDENT/POST-DOC ADVISED

Texas State University

Name	*year*	*Level*	*My Role*
Yubin Lee	current	MS	MS committee
Onyedikachi Okeke	current	PhD	PhD committee chair
Arup Acharjee	current	PhD	PhD committee
Fahad Islam	current	MS	MS committee
Xin Gu	current	Post-doc	Principal Investigator
Lidia Roy	current	MS	MS committee chair
Christopher Anderson	current	PhD	PhD committee
Yuqin Jiang	2023 - 2024	Post-doc	Principal Investigator
Junaid Bashar	2022 - 2024	MS	MS committee
Priyanjali Bose	2024	PhD	RA advisor
Ibrahim Fahmina	2023	PhD	RA advisor
Md Tousif Tanzir	2023	PhD	RA advisor
Danielle Smilovsky	2022	PhD	RA advisor

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Name	*year*	*Level*	*My Role*
Ben Liebersohn	2020 - 2022	MS	MS committee
Weiye Chen	2020 - 2022	MS	MS committee
Chaeyeon Han	2022	MS	RA advisor
Chang Liu	2022	MS	RA advisor
Mike Qin	2022	MS	RA advisor
Bin Peng	2021	MS	RA advisor
Yuchen Zhang	2021	MS	RA advisor

MEMBERSHIPS

AAG - American Association of Geographers

CaGIS - The Cartography and Geographic Information Society

ACM SIGSPATIAL

KAGES - Korea-America Association for Geospatial and Environmental Sciences

KSEA - Korean-American Scientists and Engineers Association (KSEA)