KIJIN SEONG, Ph.D., AICP

Urban Information Lab, School of Architecture
The University of Texas at Austin, Austin, TX 78712
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EDUCATION

2015 - 2021 **Ph.D. in Urban and Regional Sciences**
Texas A&M University, College Station, TX
Dissertation Title: "Living with Floods: Longitudinal impact of floodplain buyouts on neighborhood change"
Committee: Drs. Shannon Van Zandt (Chair), Walter G. Peacock, Galen Newman, David Matarrita-Cascante

2013 - 2015 **M.S. in Community and Regional Planning**
The University of Texas at Austin, Austin, TX

2010 - 2012 **M.S. in Architecture** (Specialization: Historic Preservation)
Seoul National University, Seoul, South Korea

2004 - 2010 **Bachelor of Architecture**
Yonsei University, Seoul, South Korea

RESEARCH AND TEACHING INTERESTS

Environmental Planning & Sustainability | Environmental Planning and Policy, Community Resilience, Coalstal and Floodplain Planning, Nature-Based Solutions, Green Infrastructure, Climate Change Adaptation
Community Development & Environmental Justice | Community Development, Environmental Equity, Climate Inequality, Social Vulnerability, Place-Based Inequality, Historical Redlining and Housing/Health Impacts
Urban Analytics & AI | Planning Decision Support Systems, Geospatial Modeling, GeoAI, Data Visualization
Environmental Health | Heat-related Illness, Emergency Medical Service, Urban Air Quality, Food Insecurity
Community-Engaged & Applied Urban Research | Community-Based Participatory Research (CBPR), Government–NGO Collaboration, Public Health Agency Engagement

ACADEMIC APPOINTMENTS

2022 -	**Postdoctoral Research Fellow**	Urban Information Lab, The University of Texas at Austin
2021	**Lecturer**	Dept. of Landscape Architecture and Urban Planning, TAMU
2021	**Research Fellow**	Hazard Reduction & Recovery Center, TAMU
2018	**Instructor of Record**	Dept. of Landscape Architecture and Urban Planning, TAMU
2017 - 2021	**Graduate Research Assistant**	Dept. of Landscape Architecture and Urban Planning, TAMU
2015 - 2016	**Graduate Teaching Assistant**	Dept. of Landscape Architecture and Urban Planning, TAMU

PUBLICATIONS

Peer-reviewed Journal Articles (* Corresponding author)

2025 [1] **Seong, K.***, Van Zandt, S., Peacock, W. G., & Newman, G. Racial and Ethnic Change in Floodplain Buyout Neighborhoods: Twenty-five Years of Evidence from Houston. *Journal of Planning Education and Research*. DOI: 10.1177/0739456X25139731

[2] **Seong, K.***, Jiao, J., Lewis, R. H., Farahi, A., Navratil, P., Casebeer, N., Jones, J., & Niyogi, D. (2025). Towards a Digital Twin for Smart Resilient Cities: Real-time fire and smoke tracking and prediction platform for community awareness (FireCom). *Computational Urban Science,*

5, 49. DOI: 10.1007/s43762-025-00212-x

[3] Toscan, P. C.*, **Seong, K.**, Jiao, J., Ribeiro, C. A. L. R., Carvalho, F. A. C., Oliveira, M. L., & Pereira, E. B. (2025). Impact of Nature-Based Solutions (NBS) on urban surface temperatures and land cover changes using remote sensing and machine learning. *Remote Sensing Applications: Society and Environment*, 101721. DOI: 10.1016/j.rsase.2025.101721

[4] **Seong, K.,** Choi, S.*, & Jiao, J. (2025). IoT sensors as a tool for assessing spatiotemporal risk to extreme heat. *Journal of Environmental Planning and Management.* 1-23. DOI: 10.1080/09640568.2024.2320257

[5] Jiao, J., **Seong, K.***, Sammer, M., Lewis, R. H., Reese, A., Olvera, N., Gronseth, SL., Anderson-Fletcher, E. & Kakadiaris, I. (2025). Developing a healthy food access index (HFAI): Web-based mapping and future directions for AI integrations. *Cities*, *161*, 105908. DOI: 10.1016/j.cities.2025.105908

2024 [6] **Seong, K.***, Jiao, J., Mandalapu, A., & Niyogi, D. (2024). Spatio-Temporal Patterns of Heat Index and Heat-Related Emergency Medical Services (EMS). *Sustainable Cities and Society*, 111, 105562. DOI: 10.1016/j.scs.2024.105562

[7] Mandalapu, A., **Seong, K.*,** & Jiao, J. (2024). Evaluating urban fire vulnerability and accessibility to fire stations and hospitals in Austin, Texas. *PLOS Climate*, 3(7), e0000448. DOI: 10.1371/journal.pclm.0000448

[8] Sammer, M., **Seong, K.**, Olvera N., Gronseth S. L., Anderson-Fletcher, E., Jiao, J., Reese, A., & Kakadiaris, I. A.* (2024). AI-FEED: Prototyping an AI-Powered Platform for the Food Charity Ecosystem. *International Journal of Computational Intelligence Systems*, 17(259). DOI: 10.1007/s44196-024-00656-9

[9] Lewis, R. H.*, Jiao, J., **Seong, K.**, Farahi, A., Navrátil, P., Casebeer, N., & Niyogi, D. (2024). Fire and smoke digital twin – A computational framework for modeling fire incident outcomes. *Computers, Environment and Urban Systems*, 110, 102093. DOI: 10.1016/j.compenvurbsys.2024.102093

[10] **Seong, K.*** & Jiao, J. (2024). Is a Smart City Framework the Key to Disaster Resilience? A Systematic Review. *Journal of Planning Literature*. DOI: 10.1177/08854122231199462

2023 [11] **Seong, K.***, Jiao, J., & Mandalapu, A. (2023). Hourly Associations between Heat Index and Heat-Related Emergency Medical Service (EMS) Calls in Austin-Travis County, Texas. *International Journal of Environmental Research and Public Health*. 20(19), 6853. DOI: 10.3390/ijerph20196853

[12] Jiao, J., Lewis, R. H.*, **Seong, K.,** Farahi, A., Navratil, P., Casebeer, N., & Niyogi, D. (2023). Fire and Smoke Digital Twin--A computational framework for modeling fire incident outcomes. *arXiv preprint* DOI: 10.48550/arXiv.2305.18313

[13] **Seong, K.***, Jiao, J., & Mandalapu, A. (2023). Effects of Urban Environmental Factors on Heat-related Emergency Medical Services (EMS) Response Time. *Applied Geography*. 155, 102956. DOI: 10.1016/j.apgeog.2023.102956

2022 [14] **Seong, K.***, Jiao, J., & Mandalapu, A. (2022). Evaluating the effects of heat vulnerability on heat-related emergency medical service incidents: Lessons from Austin, Texas. *Environment and Planning B: Urban Analytics and City Science.* 50(3), 776–795. DOI: 10.1177/23998083221129618

[15] **Seong, K.***, Losey, C., & Gu, D. (2022). Naturally Resilient to Natural Hazards? Urban-Rural Disparities in Hazard Mitigation Grant Program Assistance. *Housing Policy Debate.* 32(1), 190-210. DOI: 10.1080/10511482.2021.1938172

2021 [16] **Seong, K.***, Losey, C., & Van Zandt, S. (2021). To Rebuild or Relocate? Long-term Mobility Decisions of the Hazard Mitigation Grant Program (HMGP) Recipients. *Sustainability.* 2021; 13(16), 8754. DOI: 10.3390/su13168754

[17] Park, Y.*, Kim, M., & **Seong, K.** (2021). Happy neighborhoods: Investigating neighborhood conditions and sentiments of a shrinking city with Twitter data. *Growth and Change*, 52(1), 539-566. DOI: 10.1111/grow.12451

2020 [18] Losey, C.*, **Seong, K.**, & Van Zandt, S. (2020). Redressing Racial and Environmental Injustice Through a Voluntary Acquisition and Relocation Program. *Environmental Justice*, 13(4), 120-126. DOI: 10.1089/env.2019.0041

2019 [19] Sutley, E. J.*, Hamideh, S., Dillard, M. K., Gu, D., **Seong, K.**, & van de Lindt, J. W. (2019). Integrative Modeling of Housing Recovery as a Physical, Economic, and Social Process. *Proceedings of the 13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13)*. DOI: 10.22725/ICASP13.049

Manuscripts in Preparation

[1] **Seong, K.**, Mandalapu, A, & Jiao, J*. The Legacy of Redlining: Unveiling the Impact on Natural Hazard Risk and Community Resilience. (Under Review: *Applied Geography*)

[2] **Seong, K.**, Mandalapu, A., & Jiao, J*. Urban–Rural Disparities in Heat-Related Illness: Place-Based Vulnerabilities and Health System Implications in Texas. (Under Review: *Journal of Urban Health*)

[3] Choi, S., **Seong, K.***, & Jiao, J. Unveiling the Secret: Investigating Data Center Site Planning at Major ICT Companies in the U.S. (Under Review: *Cities*)

[4] Choi, S.*, Lee, H., & **Seong, K**. Assessing the Flood Resilience of Electric Vehicle Charging Stations in Seoul: Evidence from Utilization Data and Accessibility Analysis. (Under Review: *Transportation Research Part D: Transport and Environment*)

[5] **Seong, K.**, & Jiao, J.*. Predicting Heat-Related Emergency Department Visits: A GeoAI Approach to Assessing Extreme Heat Vulnerability in Texas. (Plan to submit it in December 2025: *Sustainable Cities and Society*)

[6] **Seong, K.**, Ortega, N, & Jiao, J*. Modeling the Health Impacts of Electric Vehicle Adoption: A SEM–XGBoost Approach to Environmental Stressors and Public Health Burden. (Plan to submit in December 2025: *Journal of Transport & Health*)

[7] Jiao, J. & **Seong, K**. Smart Cities with AI. Edited Book contracted with *Taylor & Francis/CRC Press*. (Planned publication: March 2026.)

Peer-reviewed Professional Reports

2022 [1] **Seong, K.** and Choi, S. (2022). Spatiotemporal Climate Risk Vulnerability Assessment to Extreme Heat and Particulate Matter: Combining Real-time Concentration of De Facto Population. *Small Research Project Competition Final Report.* Seoul, South Korea: Seoul Institute. (Available at: https://www.si.re.kr/sites/default/files/small%2022

[2] **Seong, K.** and Losey, C. (2020). To Remain or Relocate? Mobility Decisions of Homeowners Exposed to Recurrent Hurricanes. *Natural Hazards Center Quick Response Grant Report Series, 303*. Boulder, CO: Natural Hazards Center, University of Colorado Boulder. (Available at: https://hazards.colorado.edu/quick-response-report/to-remain-or-relocate-mobility-decisions-of-homeowners-exposed-to-recurrent-hurricanes)

2010 [3] **Seong, K.**, Myung, J., and Jang, E. (2010). Collaborative Governance Model for Solving the Conflicts among Stakeholders: A Study of Historic City Gyeongju. *Graduate Thesis Competition Reports of Historic City Policy, Korean Cultural Heritage Administration.*

Published Data

2021 [1] **Seong, K.** and Van Zandt, S. (2021) "Interview Instruments for Buyout Participants, Remaining Residents, and Project Managers in Harris County, Texas", in *Longitudinal Impact of Floodplain Buyouts on Neighborhood Change in Harris County, Texas*. DesignSafe-CI. https://doi.org/10.17603/ds2-sb6m-n647.

[2] Rosenheim, N., Day, W., and **Seong, K.** (2021). "Automated Neighborhood Characteristics for Community Resilience Planning." DesignSafe-CI. https://doi.org/10.17603/ds2-hj0p-bp40.

2020 [3] Sutley, E., Dillard, M., Hamideh, S., Peacock, W., Tobin, J., Peek, L., **Seong, K.**, Barbosa, A., Tomiczek, T., van de Lindt, J., and Gu, D. (2020)."Household Survey Instrument, January 19, 2018: Wave 2", in *A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016*. DesignSafe-CI. https://doi.org/10.17603/ds2-db3h-gy28.

INTERNAL/EXTERNAL GRANT & FUNDING

Funded

2025 [1] **Heat Resilience through Clean Transportation: AI-driven Predictions of Heat-related Emergency Department Visits in Vulnerable Texas Communities (# CCST24UT02).**
Led proposal writing as Co-PI, Sponsored by the Center for Climate-Smart Transportation (CCST), Johns Hopkins University. $90,000. Austin, TX. (*Terminated*)

2023 [2] **COA-UT Austin Research Collaborations: Multilingual AI-Assisted Emergency Preparedness: Enhancing Resilience and Equity in Underserved Communities during Climate Change-Induced Weather Events (UTA19-000382). Funded by the City of Austin.**
Co-PI, COA-UT Austin. $99,812. Austin, TX.

2022 [3] **NSF Convergence Accelerator Track J: Artificial-Intelligence-Based Decision Support for Equitable Food and Nutrition Security in the Houston Area 2022-2023 (# 2236305). Funded by the National Science Foundation.**
Participated in proposal writing, The University of Texas at Austin. $749,995. Austin, TX.

2022 [4] **Energy Seed Grant Program 2022-2023. Funded by The University of Texas at Austin.**
Energy Institute, The University of Texas at Austin. $60,000. Austin, TX.

2022 [5] **Small Research Project Competition 2022. Funded by Seoul Institute.**
Seoul Institute. $4,900. Seoul, South Korea.

2020 - 2021 [6] **Texas Sea Grant Grants-in-Aid of Graduate Research Program 2020-2021. Funded by the National Oceanic and Atmospheric Administration (NOAA).**
Texas Sea Grant. $2,400. College Station, TX.

2018 [7] **Quick Response Grant Program (Hurricane Florence). Funded by the National Science Foundation.**
Natural Hazards Center. $2,700. University of Colorado Boulder, CO.

Not Awarded

2024 [8] **Timing Matters: Temporal impacts of coastal flooding on work environments and transportation systems (*Not Awarded*).**

Participated in grant writing as a Senior Personnel, Sponsored by the National Science Foundation (NSF-HDBE). $559,786. Austin, TX.

[9] **Machine Learning-Driven Assessment of Nature-Based Solutions for Urban Climate Risk Mitigation (*Not Awarded*).**
Led proposal writing as a Collaborator, Sponsored by Amazon Research Awards Sustainability 2024. $90,467. Austin, TX.

[10] **AI-Based Real-Time Decision Support for Coastal Flooding During Hurricanes (*Not Awarded*).**
Assisted proposal writing as Co-PI, Sponsored by the Center for Climate-Smart Transportation (CCST), Johns Hopkins University. $90,000. Austin, TX.

[11] **Artificial-Intelligence-Based Decision-Support through 3D Digital Twin for Multi-scale Fire Risk Emergency Management. (*Not Awarded*)**
Led Proposal Writing, Sponsored by the National Science Foundation (NSF-S&CC). $2.5M. Austin, TX.

2022 [12] **Developing Solar Energy and Energy Storage Sharing System for Community Energy Resilience in the Greater Houston Area. (*Not Awarded*)**
Participated in proposal writing Sponsored by the U.S. Department of Energy. $500,000. Austin, TX.

CONFERENCE PRESENTATION AND POSTERS (* Presenting author)

2026 [1] Choi, S.*, **Seong, K.**, Jiao, J. (Mar. 2026). Unveiling the Secret: Investigating Data Center Site Planning at Major ICT Companies in the U.S. *The 2026 American Association of Geographers (AAG) Annual Meeting,* San Francisco, CA, USA.

2025 [2] **Seong, K.*,** Jiao, J., Mandalapu, A. (Oct. 2025). Uneven Burdens of Heat: Health Disparities and Planning Implications across Urban and Rural Texas. *The 2025 Association of Collegiate Schools of Planning Annual Conference,* Minneapolis, MN, USA.

[3] Toscan, P.*, **Seong, K.**, Jiao, J., Pereira, E., & Oliveira, M. (Mar. 2025). Advancing Urban Climate Analysis with Remote Sensing: Evaluating the Impact of Nature-Based Solutions on Surface Temperatures in Guimarães, Portugal. Proceedings of *The International Conference on Advanced Remote Sensing (ICARS 2025*), Barcelona, 26–28 March 2025, MDPI: Basel, Switzerland.

2024 [4] **Seong, K.*,** Mandalapu, A., and Jiao, J., (Nov. 2024). The Legacy Effect of Redlining on Disaster Risk and Community Resilience. *The 2024 Association of Collegiate Schools of Planning Annual Conference,* Seattle, WA, USA.

2023 [5] Jiao, J., Lewis, R. H.*, **Seong, K.**, Farahi, A., Navratil, P., Casebeer, N., and Niyogi, D. (Apr. 2023). Fire and Smoke Digital Twin – A computational framework for modeling fire incident outcomes. Poster presented at *the 2023 Good Systems Symposium*, Austin, TX., USA.

[6] **Seong, K.*,** Jiao, J., Mandalapu, A. (Mar. 2023). Associations between Spatio-temporal Patterns of Extreme Heat Events and Heat-related Emergency Medical Services (EMS) in Austin, Texas. *The 2023 American Association of Geographers (AAG) Annual Meeting,* Denver, CO, USA.

[7] **Seong, K.*,** Jiao, J., & Mandalapu, A. (Jan. 2023). Effects of Urban Environmental Factors on Heat-related Emergency Medical Services (EMS) Response Time. Poster presented at *Transportation Research Board 2023 Annual Conference,* Washington D.C., USA.

2022   [8]   **Seong, K.*,** Mandalapu, A., Jiao, J. (Nov. 2022). Evaluating the Effect of Heat Vulnerability on Emergency Medical Service (EMS) Incidents in Austin, Texas. *The 2022 Association of Collegiate Schools of Planning Annual Conference,* Toronto, Canada.

      [9]   Choi, S.*, **Seong, K.**, and Jiao, J. (Jul. 2022). Spatiaotemporal Climate Risk Vulnerability Assessment to Extreme Heat and Particulate Matter: Combining Realtime Concentration of De Facto Population. *Sustainable Built Environment 2022 Seoul Conference.* Seoul, South Korea.

2021   [10]   **Seong, K.***, and Van Zandt, S. (Oct. 2021). Neighborhood Change After Floodplain Buyouts: Findings from Harris County, Texas. *The 2021 Association of Collegiate Schools of Planning Annual Conference,* Virtual.

     [11]   **Seong, K.***, and Van Zandt, S. (Jul. 2021). Longitudinal Impact of Floodplain Buyouts on Neighborhood Change in Harris County, Texas. *The 46th Annual Natural Hazards Research and Application Workshop: Researchers Meeting*, Virtual.

2020   [12]   Losey, C.*, **Seong, K.**, and Van Zandt, S. (Jul. 2020). "The Waters Will Rise Again": Recounting Resilience and Recovery Among HMGP Recipients. *The 45th Annual Natural Hazards Research and Application Workshop: Researchers Meeting*, Virtual.

2019   [13]   Losey, C.*, **Seong, K.**, and Van Zandt, S. (Oct. 2019). To Remain or Relocate? Long-term Mobility Decisions of Homeowners Exposed to Recurrent Hurricanes. *The 59th Association of Collegiate Schools of Planning (ACSP) Conference*, Greenville, SC. *** 2019 ACSP The Best Poster Award**

     [14]   **Seong, K.***, Losey, C., and Van Zandt, S. (Sep. 2019). Post-disaster Mobility Decisions of Homeowners in Lumberton, NC. *The HRRC Symposium "Resilience Rising: Research and Practice on Hurricane Harvey and Hazards of the Future"*, Texas A&M University, College Station, TX.

     [15]   Losey, C.*, **Seong, K.**, and Van Zandt, S. (Jul. 2019). Long-term Mobility Decisions of Homeowners Exposed to Hurricane Matthew and Florence. *The 44th Annual Natural Hazards Research and Application Workshop*, Broomfield, CO.

     [16]   **Seong, K.***, Losey, C., and Van Zandt, S. (Sep. 2019). The Paradoxes of Government Disaster Policy: Residential Mobility Decisions of Hazard Mitigation Grant Program (HMGP) Recipients. *The 44th Annual Natural Hazards Research and Application Workshop: Researchers Meeting*, Broomfield, CO.

     [17]   Sutley, E. J.*, Hamideh, S., Dillard, M., Gu, D., **Seong, K.**, and Van de Lindt, J., (May. 2019). Interactive Modeling of Housing Recovery as a Physical, Economic, and Social Process. *The 13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13)*, Seoul, South Korea.

2018   [18]   **Seong, K.***, and Van Zandt, S. (Jul. 2018). Residential Mobility after Disasters: A Systematic Approach. *The 43rd Annual Natural Hazards Research and Applications Workshop*, Broomfield, CO.

     [19]   **Seong, K.***, and Van Zandt, S. (Apr. 2018). A Systemic Literature Review: Permanent Residential Relocation after Disasters. *The NIST-COE Semi-Annual Meeting Graduate and Post-Doctoral Poster Presentation Competition 2018*, Fort Collins, CO.

     [20]   **Seong, K.***, and Van Zandt, S. (Apr. 2018). A Systematic Literature Review of Post-Disaster Relocation: Driving Factors, Process, and Impacts of Residential Relocation. *The 48th Annual Conference of the Urban Affairs Association*, Toronto, Ontario, Canada.

2017 [21] **Seong, K.*** (Oct. 2017). Physical and Social Vulnerability of Social Housing and Periodic Maintenance of Housing Association in Almere, the Netherlands. *The 19th Annual College of Architecture Research Symposium*, Texas A&M University, College Station, TX.

[22] **Seong, K.***, and Van Zandt, S. (Oct. 2017). Driving Factors, Process, and Impact of Permanent Relocation After Disaster. *The 2017 Association of Collegiate Schools of Planning Annual Conference*, Denver, CO.

[23] **Seong, K.***, and Van Zandt, S. (Jul. 2017). Micro-scale Hazard Mitigation Approach: Calculating Parcel-level Physical Vulnerability In and Outside Floodplain. *The 2017 Natural Hazards Workshop*, Broomfield, CO.

[24] **Seong, K.***, and Van Zandt, S. (Apr. 2017). Hazard Mitigation Strategies: Flood Buyout and Post-disaster Relocation in Austin's Onion Creek Neighborhood. *The NIST-Center of Excellence, Graduate and Post-Doctoral Poster Presentation Competition 2017*, Fort Collins, CO.

[25] **Seong, K.***, and Van Zandt, S. (Apr. 2017). Assessing Physical and Social Vulnerability of Neighborhoods After Floods Using Remote Sensing Imagery and GIS. *The 47th Annual Conference of the Urban Affairs Association*, Minneapolis, MN.

2016 [26] **Seong, K.*** (Nov. 2016). Property Acquisitions for Low-income Homeowners in Onion Creek Neighborhood, Austin, Texas. *The GIS Day 2016 Poster Competition*, Texas A&M University, College Station, TX.

[27] **Seong, K.***, and Van Zandt, S. (Oct. 2016). Impact of Buyout and Relocation on Low-income Homeowners after Floods in Austin, Texas. *The 2016 Association of Collegiate Schools of Planning Annual Conference*, Portland, OR.

[28] **Seong, K.*** (Oct. 2016). Impact of Buyout Programs on Low-income Homeowners: A Case Study of the Onion Creek Neighborhood, Austin, Texas. *The 18th Annual College of Architecture Research Symposium*, Texas A&M University, College Station, TX.

2011 [29] **Seong, K.***, and Park, S. (Oct. 2011). Historic Preservation Issues of Korean Historic Villages: The Case of Hahoe and Yangdong. *The Academic Conference on Architectural Institute of Korea*, Gyeongsan, South Korea.

RESEARCH PROJECTS AND WORK EXPERIENCES

2022 - **A Good Systems for Smart Cities, the UT Good System Grand Challenge**
Funded by the University of Texas at Austin
- <u>Postdoctoral Researcher</u>, Urban Information Lab (UIL), The University of Texas at Austin, Austin, TX.
- AI-based technologies and ethical AI projects
- Develop Austin Fire Digital Twin and EMS Digital Twin
- Develop near real-time fire/smoke prediction model in Austin-Travis County, TX
- Develop heat vulnerability assessment and emergency medical services (EMS) incidents
- Develop historical redlining and its impact on disaster resilience
- Assessed public health impact of extreme heat events, with a focus on cardiovascular, respiratory, neurological, and non-severe cases
- Develop topic modeling and conduct sentiment analysis using X (Twitter) data on extreme heat events
- Conduct a systematic review of the smart city framework for disaster resilience
- Develop ML models predicting the demand for Emergency Department Visits in Texas

2023 – 2024 **NSF Convergence Accelerator Track J: Artificial-Intelligence-Based Decision Support for Equitable Food and Nutrition Security in the Houston Area**
Funded by the National Science Foundation (NSF)
- Postdoctoral Researcher, The University of Texas at Austin, Austin, TX.
- Collect and map the data for assessing and modeling food deserts
- Develop prediction algorithms for food deserts
- Integrate big data with the data from the Tackle Hunger Map

2022 - 2023 **Spatiotemporal Climate Risk Vulnerability Assessment to Extreme Heat and Particulate Matter: Combining Realtime Concentration of De Facto Population**
Funded by Seoul Institute
- Principal Investigator (PI), Urban Information Lab (UIL), The University of Texas at Austin, Austin, TX.
- Led research design, funding coordination, analysis, and report writing.

2021 - 2022 **The Center of Excellence for Risk-Based Community Resilience Planning (2015-2025)**
Funded by the National Institute of Standards and Technology (NIST)
- Researcher Fellow, Hazard Reduction & Recovery Center (HRRC), Texas A&M University, College Station, TX.
- Develop the buyout model for Galveston testbed for hazard mitigation; contribute to the IN-CORE model building and collaborate with interdisciplinary scholars in civil engineering, sociology, economics, and computer science

2017 - 2021 **The Center of Excellence for Risk-Based Community Resilience Planning (2015-2025)**
Funded by the National Institute of Standards and Technology (NIST)
- Research Assistant, Hazard Reduction & Recovery Center, Texas A&M University, College Station, TX.
- Working with Dr. Shannon Van Zandt, Dr. Walter Peacock, and Dr. Nathanael Rosenheim
- Developed survey instruments, data cleaning and analysis for the Lumberton housing survey

2018 - 2019 **To Remain or Relocate? Long-term Mobility Decisions of Homeowners Exposed to Recurrent Hurricanes**
Funded by National Science Foundation (NSF), Natural Hazards Center. University of Colorado Boulder, CO.
- Principal Investigator (Co-PI: Clare Losey), Texas A&M University, College Station, TX.
- Conducted research design, IRB protocol, fieldwork, in-depth interviews, data collection/analysis, and report writing

2017 - 2019 **Unprecedented Voluntary Acquisition and Relocation Program Redresses Decades of Racial and Environmental Injustice (Hillcrest Community, Corpus Christi, TX)**
- Researcher, Texas A&M University, College Station, TX.
- Collaborated with local non-profit organizations, Texas Housers Texas RioGrande Legal Aid
- Conducted research design, data analysis, assistance of internal meetings, and paper writing

2013 **Residential Mobility Patterns and its Characteristics in Seoul Metropolitan Area**
- Research Intern, The Seoul Institute, Seoul, South Korea
- Data collection and GIS analysis

2011 - 2012 **Namhansanseong: Ancient Fortified Military and Cultural Landscape of Mt. Namhansan**
- Researcher, Seoul National University, SNU R&DB Foundation, Seoul, South Korea
- Conducted a preliminary research on UNESCO World Heritage; organized public meetings

2011 - 2012 **The Preservation Management Manual for World Heritages in Korea**

- <u>Researcher</u>, Seoul National University, SNU R&DB Foundation, Seoul, South Korea
- Conducted research design, data analysis, and report writing

2010 - 2011   **Characteristics of International Preservation Principles**
- <u>Research Assistant</u>, Seoul National University, SNU R&DB Foundation, Seoul, South Korea
- Conducted preliminary study on world heritage principles

2010   **Preservation and Management Plan for World Heritages in Korea: Buffer Zone Development**
- <u>Research Assistant</u>, Seoul National University, SNU R&DB Foundation, Seoul, South Korea
- Writing a periodic report 2012 for world heritages in Korea

2008   **Construction Process Management for the Parc1 Project**
- <u>Research Intern</u>, SAMSUNG Construction Company, Seoul, South Korea
- Conducted fieldwork; assisted in the construction process management

2006   **Main Street Design for Yeongdeungpo-gu, Seoul**
- <u>Design Intern</u>, Iroje Architects & Planners, Seoul, South Korea
- Assisted modeling and AUTOCAD drawing; assisted design work

COMMUNITY-ENGAGED / PARTICIPATORY RESEARCH EXPERIENCE

Austin–Travis County EMS, Austin Fire Department (Austin, TX)
Worked on heat vulnerability assessment, EMS Digital Twin, and real-time fire/smoke prediction platforms to support community-level emergency preparedness.

City of Austin Office of Resilience/ Communications and Public Information Office (Austin, TX)
Co-developed multilingual risk communication tools and AI-assisted emergency preparedness systems targeting underserved neighborhoods.

Tackle Hunger & Houston Food Charity Networks (Houston, TX)
AI-assisted Decision Support for Equitable Food and Nutrition Security in the Houston Area.

Hillcrest Community (Corpus Christi, TX), Texas Housers, TRLA (Corpus Christi, TX)
EJ-focused engagement for buyout and relocation programs.

Houston/Harris County Floodplain Buyout Communities/ Lumberton Buyout Communities (Lumberton, NC)
Conducted fieldwork, interviews for long-term resilience, and demographic change analysis.

Seoul Institute (Seoul, South Korea)
Climate risk mapping and public health vulnerability analyses with local agencies.

TEACHING EXPERIENCES AND INVITED LECTURES

Lecturer	**URPN202 Building Better Cities** (Fall 2021), Texas A&M University. Undergraduate course for contemporary issues of urbanization and urban planning process
	URPN340 Housing and Community (Fall 2021), Texas A&M University. Undergraduate course for housing policy; housing finance, and the housing market
Instructor	**CRP381Q Quantitative Methods** (Scheduled, Spring 2026), The University of Texas at Austin. Graduate-level, Python-based, quantitative methods course (data gathering, analysis, and communication for planning practice)
	URPN202-501 Building Better Cities (Fall 2018), Texas A&M University. Introductory course for contemporary issues of urbanization and urban planning process
Teaching Assistant	**CARC601 Research Foundations** (Fall 2016), Texas A&M University. Serving as a discussion facilitator Assisting course materials and equipment

	URPN 460 Sustainable Communities (Fall2015 - Spring 2016), Texas A&M University. Serving as a primary grader
Guest Lecturer	**Sustainable Land Use & Environmental Planning** (Fall 2025) GSP130 Intro to Mapping the World, Instructor: Seung Jun Choi, Northern Arizona University.
	Ethical AI: AI Applications in Environmental Studies (Spring 2025) UGS302 Ethical AI: Good Systems, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Smart and Resilient Cities: Mitigating the Risks of Climate Change (Spring 2024) LA329 Global Learning Seminar, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Resilient Smart Cities: Technologies in Climate Change Adaptation (Spring 2024) LA329 Global Learning Seminar, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Smart City Framework for Disaster Resilience (Spring 2024) CRP395D Smart City Practicum, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Smart and Resilient Cities (Spring 2022) BDP 319 Smart City: Evaluate, Design and Build A Smart City and Community, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Urban-GIS: GIS and Environmental Analysis (Spring 2022) CRP 386 Urban Geographic Information Systems, Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	Urban Problems: Hazards and Social Vulnerability (Fall 2021) GEOG 199 Urban Issues & Sustainability, Instructor: Dr. Boah Kim, Bridgewater State University.
	Systematic Literature Review (Fall 2021) CARC601 Research Foundations, Instructor: Dr. Shannon Van Zandt, Texas A&M University.
	Systematic Literature Review (Fall 2018) CARC601 Research Foundations, Instructor: Dr. Shannon Van Zandt, Texas A&M University.
	Disaster Recovery and Resilience in Urban Planning (Spring 2018) URPN202-501 Building Better Cities, Instructor: Dr. Boah Kim, Texas A&M University.
	American Industrial Cities/ Google Earth (Spring 2018) URPN201-501 Evolving Cities, Instructor: Emily Tedford, Texas A&M University.
	Community Resilience for Better Cities (Fall 2017) URPN202-501 Building Better Cities, Instructor: Dr. Boah Kim, Texas A&M University.
	Disaster Planning and Neighborhood Revitalization (Spring 2017) PLAN629 Neighborhood Revitalization, Instructor: Dr. Boah Kim, Texas A&M University.
Guest Panelist	**TEXAS GLOBAL: AI Foundations**, Mid-term and Final Review (Fall 2025) Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	CRP395D Smart City Practicum, Final Review (Spring 2024) Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	CRP395C Smart City Practicum, Final Review (Fall 2022) Instructor: Dr. Junfeng Jiao, The University of Texas at Austin.
	LAND311 Landscape Design III, Final Presentation (Fall 2017) Instructor: Dr. Galen Newman & Dr. Ryun Jung Lee, Texas A&M University.
	PLAN 667 Site Planning, Final Presentation (Spring 2016) Instructor: Dr. Yunmi Park, Texas A&M University.
Invited Talk	**Smart Austin: A Digital Twin Approach for Real-time Monitoring, Decision Support, and Public Safety Enhancement.** 2024 Good System Annual Symposium. The University of Texas at Austin,

Austin, Texas. (Spring 2024)

Heat Vulnerability and EMS Response in Austin: Uncovering spatial disparities and shaping resilience strategies. 2023 Texas Water Research Network Meeting. Virtual. (Fall 2023)

Spatiotemporal Climate Risk Vulnerability Assessment to Extreme Heat and Particulate Matter: Combining Real-time Concentration of De Facto Population.
ELTEC College of Engineering, Architectural and Urban System Engineering, Ewha Womans University, Seoul, South Korea. (Fall 2022)

Teaching Certificate	**The Academy for Future Faculty (AFF) Fellow Certificate** (Spring 2018) The Center for Teaching Excellence, Texas A&M University.

AWARDS AND HONORS

2020 - 2021	**Texas A&M University 2020-2021 Dissertation Fellowship** Texas A&M University (university-wide). 12-month stipend + tuition waiver. College Station, TX.
2019	**2019 ACSP The Best Poster Award**. Greenville, SC.
2017 - 2018	**Urban and Regional Science Doctoral Department Scholarship** School of Architecture, Texas A&M University, College Station, TX, United States
2017	**National Science Foundation Partnerships for International Research and Education:** **Full-funded Field Research in the Netherlands (Coastal Flood Risk Reduction Travel Program)** Texas A&M University at Galveston, Galveston, TX, United States
2015	**International Urban Design Trend Report, the 3rd Award** Seoul Design Foundation, Seoul, South Korea.
2015	**International Student & Scholar Services (ISSS) Scholarship** ISSS Committee, University of Texas, Austin, TX, United States.
2014	**Potter Rose Graduate Fellowship** School of Architecture, University of Texas, Austin, TX, United States.
2014	**Mebane Scholarship** School of Architecture, University of Texas, Austin, TX, United States.
2010 - 2011	**Merit Scholarship** Dept. of Architecture, Seoul National University, Seoul, Korea.
2010	**Excellence Prize,** Graduate Thesis Competition of Historic City Policy Korean Cultural Heritage Administration, Seoul, Korea.
2004 - 2009	**Merit Scholarship** Dept. of Architecture, Yonsei University, Seoul, Korea.
2008	**Global Intern Scholarship** College of Engineering, Yonsei University, Seoul, Korea.
2007	**Excellence Prize** in Architectural Design Project for Senior Housing Dept. of Architecture, Yonsei University, Seoul, Korea.
2006	**Semester High Honor** Dept. of Architecture, Yonsei University, Seoul, Korea.

MENTORSHIP

2025	**Undergraduate Students** Winston Zhang (Electrical & Computer Engineering), UT Austin (Supervisor) Natalia Ortega (Econometrics & Quantitative Economics), UT Austin (Supervisor)

2024	**Undergraduate and Graduate Students**
	Akhil Mandalapu (Public Health, Undergraduate), UT Austin (Supervisor)
	Shashank Kota (Computer Science, Undergraduate), UT Austin (Project Mentoring)
	Shivali Chava (Public Health, Undergraduate), UT Austin (Project Mentoring)
	Paloma Toscan (Civil Engineering, Doctoral), University of Minho, Portugal (UIL Research Intern) (Project Supervising)
2022 - 2023	**Undergraduate Students**
	Akhil Mandalapu (Public Health), UT Austin (Thesis, Research Mentoring)
	Ryan Hardesty Lewis (Mathematics), UT Austin (Project Mentoring)

SERVICES AND ORGANIZATIONAL ACTIVITIES

2025	**Senior Program Coordinator, Smart Cities and AI Innovations Symposium 2025**
	(Jun. 3, 2025, https://gssmartcitiessymp06-03.splashthat.com/)
	The University of Texas at Austin, Austin, TX.
2024	**Senior Program Coordinator, Smart Cities and AI Innovations Symposium 2024**
	(May. 2, 2024, https://smartcitiessymposium2024.splashthat.com/)
	The University of Texas at Austin, Austin, TX.
2023	**Program Coordinator, Smart Cities and Generative AI Symposium 2023**
	(Aug. 18, 2023, https://smartcitiessymposium.splashthat.com/)
	The University of Texas at Austin, Austin, TX.
2023-	**Council Liaison, A Good System for Smart Cities Advisory Group**
	The University of Texas at Austin, Austin, TX.
2022 - 2023	**Program Organizer and Moderator, Good Systems Smart Cities Talk Series**
	The University of Texas at Austin, Austin, TX.
2019 - 2020	**Student Member, Tenure-Track Faculty Search Committee**
	Dept. of Landscape Architecture and Urban Planning, Texas A&M University, College Station, TX.
Fall 2019	**Presenter, COA Colloquium "Care and Feeding of Graduate Advisors: How to Manage your Mentor"**
	Co-presented with Dr. Shannon Van Zandt, Clare Losey, Kijin Seong, Chandler Wilkins.
	College of Architecture, Texas A&M University, College Station, TX.
Fall 2018	**Student Session Organizer, The Center of Excellence for Risk-Based Community Resilience Planning**
	Interactive Glossary Session at NIST CoE Semi-Annual Meeting, Gaithersburg, MD.
Feb 2018	**Presenter, URSC Student Organization Brown Bag Seminar. "Conducting an Interdisciplinary Field Study"**
	Co-presented with Watson, Maria, Kai Wu, Donghwan Gu.
	Dept. of Landscape Architecture and Urban Planning, Texas A&M University, College Station, TX.
2016 - 2017	**President, LAUP Korean Student Association**
	Dept. of Landscape Architecture and Urban Planning, Texas A&M University, College Station, TX.
2014 - 2016	**Foreign Correspondent**
	Seoul Metropolitan Government / Seoul Design Foundation.
2014 - 2015	**Dean's Ambassador**
	School of Architecture, University of Texas at Austin, TX.
2011	**Volunteer for NGO Support**
	Management and improvement of cultural heritage sites, Arumjigi (NGO), South Korea.

2010	**Program Manager**
	International Workshop, Youth in Community Action "Youth Working Together for Sustainable Communities," organized by the Korean National Commission for UNESCO, Gyeongju, Korea.
2008 - 2009	**Volunteer for NGO Support**
	Cityscape Trust Movement for Bukahyun-dong residential district and Nakwonsangga, organized by CultureLEC (NGO), Seoul, South Korea.

MEDIA COVERAGE

Jan. 2025	"Wildfire Risk; Flood Buyout Program" Austin InSight. Season 2025 Episode 9. PBS. (https://www.pbs.org/video/wildfire-risk-flood-buyout-program-san7sx/)
Aug. 2023	"Why one Austin neighborhood suffers more from this extreme heat than others in the city," Texas Standard: The National Daily New Show of Texas. (https://www.texasstandard.org/stories/heat-island-effect-east-austin-neighborhood-extreme-hot-summer/)
Apr. 2023	"New UH Project Combats Food Insecurity Through AI: Digital Platform Aims to Help Food-Insecure Texans Access Nutritious Meals. UH University Media Relation. (https://www.uh.edu/nsm/news-events/stories/2023/0403-food-insecurity-ai.php/)

CERTIFICATES

June. 2024	American Institute of Certified Planners (AICP)

PROFESSIONAL AFFILIATIONS

Member of the Association of Collegiate Schools of Planning (ACSP), USA
Member of the American Planning Association (APA), USA
Member of the Urban Affairs Association (UAA), USA
Member of the American Association of Geographers (AAG), USA
Reviewer of Academic Journals and Symposia:
- Environment and Planning B: Urban Analytics and City Science (EPB)
- The 1st International Symposium on Trustworthy Autonomous Systems (TAS '23)
- The 2nd International Symposium on Trustworthy Autonomous Systems (TAS '24)
- Environment and Urban Systems (CEUS)
- International Journal of Environmental Research and Public Health (IJERPH)
- Journal of Planning Literature (JPL)
- International Journal of Disaster Risk Reduction (IJDRR)
- Journal of Planning Education and Research (JPER)
- Sustainable Cities and Society (SCS)
- npj Natural Hazards
- Annals of the American Association of Geographers (AAG)
- Health and Place (JHAP)
- International Journal of Mass Emergencies and Disasters (IJMED)

GRAPHIC AND RESEARCH SKILLS

Analysis Software/Computational Language | STATA, ArcGIS Pro, ATLAS.ti, SPSS, ENVI
Computational Language | Python, R, HTML
Design Software | Adobe InDesign/Illustrator/Photoshop, SketchUp, Google Earth Pro, AutoCAD
Documentation Software | Microsoft Office Suite, LaTeX