

Chaeyeon (“Che-Yon”) Han

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PROFILE

A Ph.D. candidate in School of City and Regional Planning, Georgia Tech, with research interests in **Urban Data Analytics, Urban and Geo AI, Climate-induced Displacement, and Human Mobility.**

EDUCATION

Ph.D. in City and Regional Planning Georgia Institute of Technology	Aug. 2022 – present
Master of Science in Urban Analytics (MSUA) Georgia Institute of Technology	Aug. 2023 - present
Master of Urban Planning (MUP) University of Illinois at Urbana-Champaign	May 2022
Bachelor of Science in Computer Science and Engineering (Double major: Urban Planning and Engineering) Yonsei University, Seoul, Republic of Korea	Aug. 2020

AFFILIATION

Center for Urban Resilience and Analytics (CURA), Georgia Tech <i>Graduate Research Assistant</i> <i>Advisor: Professor Subhrajit Guhathakurta</i>	Aug. 2022 – present
CyberGIS Center for Advanced Digital and Spatial Studies, UIUC <i>Research Assistant</i> <i>Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han (team leader)</i> <ul style="list-style-type: none">• Developed time series forecasting models using Python and Jupyter Notebook• Project “Development and Validation of Regional Models of HIV Vulnerabilities and Solutions” with PIs: Dr. Dolores Albarracin and Dr. Sally Chan	Sep. 2021 – May 2022
Environmental Spatial Informatics & Disaster Prevention Lab, Yonsei University <i>Research Assistant Internship</i> <i>Advisor: Professor D.K. Yoon</i> <ul style="list-style-type: none">• Analyzed the tendency of how research on disasters has been conducted through Topic Modeling and Network Analysis• Categorized the time series pattern of ridership demand after the outbreak of COVID-19 in each subway station in Seoul using open ridership data	Jan. – Oct. 2020

PUBLICATIONS

1. (Under Review) **Han, C.**, Guhathakurta, S. Where do evacuees go? Understanding Evacuation Destinations in Georgia during Hurricane Milton. *International Journal of Disaster Risk Reduction.*
2. (Under Review) Liu, K., Guhathakurta, S., **Han, C.**, Hittinger, E., Phoung, S., & Williams, E. Online Shopping Time-Efficiency: An Experience Curve Approach. *Time and Society*
3. (Under Review) Koo, BW., Ki, D., Kim, Y., **Han, C.**, Lee, S. Leveraging AI for Plan Evaluation: Assessing ChatGPT’s Potential for Flood Resilience Scorecard. *Journal of Environmental Planning and Management.*
4. Ki, D., Lee, S., **Han, C.**, Kim, Y., Koo, BW., Hwang, U. (2026) Does Weather Matter? Examining Measurement Bias in Street View Image-based Urban Perception Assessments. *Computers*

Environment and Urban Systems.

5. Liu, K., Guhathakurta, S., **Han, C.**, Hittinger, E., Phoung, S., & Williams, E. (2025) The Impact of Online Shopping on Retail Building Space and Energy Demand in the US. *Energies*.
6. Kim, Y., **Han, C.**, Sarode, A., Posner, N., Guhathakurta, S., & Lerch, A. (2025) Audio-Based pedestrian detection in the presence of vehicular noise. *Detection and Classification of Acoustic Scenes and Events 2025*.
7. **Han, C.**, Lieu, S., Guhathakurta, S. (2025) Do Streetscapes Still Matter for Customer Ratings of Eating and Drinking Establishments in Car-Dependent Cities? *Journal of Urban Design*.
8. **Han, C.**, Guhathakurta, S., Hittinger, E., Liu, K., Phoung, S., Williams, E. (2025) Empirical Assessment of Teleworking's Impact on Residential Energy Consumption in the U.S.: Multilevel Modeling and Time Use Comparisons. *Environmental Research and Infrastructure Sustainability*.
9. **Han, C.**, Koo, B., Hwang, U. (2025) Mental Health Facility Visits Before and after the Outbreak of Covid-19: The Role of Walkable Built Environment. *Journal of Transport & Health*.
10. Han, SY., Kim, JS., Jiang, Y., Kang, JY., Park, J., **Han, C.**, Michels, A., Wang, S. (2024) CyberGIS-Vis for Democratizing Access to Scalable Spatiotemporal Geovisual Analytics: A Case Study of COVID-19. *Proceedings of the 5th ACM SIGSPATIAL International Workshop on Spatial Computing for Epidemiology*.
11. **Han, C.**, Hwang, U., Guhathakurta, S. (2024) Can Thanksgiving Destinations Predict Climate Migration Patterns? *Findings*.
12. **Han, C.**, Seshadri, P., Ding, Y., Posner, N., Koo, B., Agrawal, A., Lerch, A., Guhathakurta, S. (2024) Understanding Pedestrian Movement Using Urban Sensing Technologies: The Promise of Audio-based Sensors. *Urban Informatics*.
13. Liu, K., Guhathakurta, S., **Han, C.**, Hittinger, E., Phoung, S., & Williams, E. (2024). How much is US Office Building Space Reduced per Teleworker? *Findings*. <https://doi.org/10.32866/001c.115400>
14. Seshadri, P., **Han, C.**, Koo, B., Posner, N., Guhathakurta, S., & Lerch, A. (2024). ASPED: An Audio Dataset for Detecting Pedestrians. *IEEE Conference Publication | IEEE Xplore*. <https://ieeexplore.ieee.org/abstract/document/10447655>
15. (Under revision) **Han, C.**, Hwang, U., Koo, B., Guhathakurta, S. A Bibliometric Literature Review of Artificial Intelligence, Machine Learning, and Deep Learning in Urban Studies. *Journal for Planning Literature*.
16. **Han, C.**, Kim, W., Yoon, D.K., A Comparative Analysis of Trends of Disaster Risk Research using Topic Modeling & Network Analysis. *Journal of the Korean Society of Hazard Mitigation [KOSHAM], Vol.21, No.5 (Oct. 2021), pp.1~ 10. ISSN 2287-6723(Online)*

POSTERS

1. **Chaeyeon Han**, Subhrajit Guhathakurta. Where do evacuees go? Understanding Evacuation Destinations in Georgia during Hurricane Milton. MR2025: Mobility, Adaptation, and Wellbeing in a Changing Climate. Columbia University, New York City. June, 2025.
2. **Chaeyeon Han**, Seung Jae Lieu, Subhrajit Guhathakurta. The Interplay of Aging Populations and Urban Agglomeration: Assessing Economic Specialization and Densification Trends in U.S. Cities. Association of Collegiate Schools of Planning. Chicago, October 2023.
3. Mike Qin, Su 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.

PRESENTATIONS

1. **Chaeyeon Han**, Subhrajit Guhathakurta, Where Do Evacuees Go? Understanding Evacuation Destination Choices Using Point-of-Interest Visitation Data. Multiplied Displacement 2026: The Climate Nexus, January, 15-17, 2026.
2. **Chaeyeon Han**, Subhrajit Guhathakurta, Where do evacuees go? Understanding Evacuation Destinations in Georgia during Hurricane Milton. Association of Collegiate Schools of Planning.

Seattle, October 23-26, 2025.

3. **Chaeyeon Han**, Animesh Agrawal, Jing Luan, Seung Jae Lieu, Subhrajit Guhathakurta, Alexander Lerch. Pedestrian Flow Prediction using Video and Audio Sensing Techniques. AI and the City. Bangalore, India, January 4-5, 2025.
4. **Chaeyeon Han**, Animesh Agrawal, Jing Luan, Seung Jae Lieu, Subhrajit Guhathakurta, Alexander Lerch. Pedestrian Flow Prediction using Video and Audio Sensing Techniques. Association of Collegiate Schools of Planning. Seattle, November 7-9, 2024.
5. **Chaeyeon Han**, Seung Jae Lieu (Presenter), Subhrajit Guhathakurta. Aesthetic Places and Travel Destination Choices. Association of Collegiate Schools of Planning. Seattle, November 2024.
6. **Chaeyeon Han**, Uijeong Hwang, Subhrajit Guhathakurta. Exploring the Geography of Social Ties in the U.S. based on Thanksgiving Destinations. Association of Collegiate Schools of Planning. Chicago, October 2023.
7. **Chaeyeon Han**, Bon Woo Koo, and Uijeong Hwang. Mental Health Facility Visits Before and After the Outbreak of Covid-19: The Role of Neighborhood Built Environment. Annual meeting of the Association of American Geographers. Denver, March 2023.
8. **Chaeyeon Han**, Su 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, April 2022.
9. Su Han, **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, April 2022.
10. Woosik Kim, **Chaeyeon Han**, D.K. Yoon, A Comparative Analysis of Trends of Disaster Risk Research using Topic Modeling & Network Analysis. Journal of the Korean Society of Hazard Mitigation [KOSHAM]. August 20-21, 2020 (Virtual)

INVITED TALK

Panel Talk for Brook Byers Institute for Sustainable Systems (BBISS), Georgia Tech

2026 Sustainability Showcase - From Big Bets To Local Solutions: Tech's Role in Resilience

Subhrajit Guhathakurta, Tony Giarrusso, Rounaq Basu, Perry Yang, Yiyi He, **Chaeyeon Han**, "The Role of Geospatial Technologies and AI in Advancing Resilient Urban Futures", Feb. 9 (2026)

Guest Lecture for Tokyo Smart City Studio, Georgia Tech

Chaeyeon Han, "Modeling Perception of Urban Environment: A Use Case in Bancho Area of Tokyo", Feb. 4 (2026)

Guest Lecture for GEOG 106 Geographies of Globalization, UIUC

Chaeyeon Han, "How did Japanese Occupation reform the City of Seoul? The Discourse around Japanese Occupation", Nov. 4 (2021)

RESEARCH PROJECTS

15. Explaining Where People Go: Interpretable Machine Learning for Post-Hurricane Relocation Destination Choice

May 2025 - present

Center for Urban Resilience and Analytics, Georgia Tech

Advisor: Dr. Subhrajit Guhathakurta

- Using random forest and explainable AI methods to identify factors in hurricane evacuation destination choices, with focus on social ties.
- Testing generalizability of mobility patterns across three hurricane events.
- Utilizing mobile GPS-derived POI foot traffic data from Advan Research

- 14. Where do evacuees go? Understanding Evacuation Destination Choices in Georgia during Hurricane Helene and Milton** Dec. 2024 - present
Center for Urban Resilience and Analytics, Georgia Tech
Advisor: Dr. Subhrajit Guhathakurta
- Utilizing mobile GPS-derived POI foot traffic data from Advan Research, we examine where Florida residents relocated during Hurricane Milton, and the factors associated with the destination choices.
 - Investigating whether evacuees from more severely impacted areas exhibit different destination choices compared to those from less affected regions.
 - Manuscript under review
- 13. Leveraging AI for Plan Evaluation: Assessing ChatGPT's Potential for Flood Resilience Scorecard** Aug. 2024 - Feb. 2025
Dr. Bon Woo Koo (Yonsei University), Donghwan Ki (Ohio State University), Dr. Youjung Kim (University of South Florida), Dr. Sungmin Lee (Texas A&M University)
- Experimented ChatGPT as a policy evaluation tool, especially as a flood resilience scorecard evaluator.
 - Manuscript under review
- 12. Pedestrian Flow Prediction using Video and Audio Sensing Techniques** May. 2024 - present
Center for Spatial Planning Analytics and Visualization, Georgia Tech
Advisor: Dr. Subhrajit Guhathakurta
- Utilizing the ASPED dataset, which includes both video and audio data collected on the Georgia Tech campus, we trained machine learning models to detect pedestrians through audio recordings.
 - Employed Convolutional Neural Network (CNN), Long Short Term Memory (LSTM) and a Graph Convolutional Network (GCN) models to compare performance.
 - Experimenting how much audio data can improve performance of video-based pedestrian flow prediction.
 - Published in Urban Informatics.
- 11. Aesthetic Places and Travel Destination Choices** May. 2024 - present
Center for Spatial Planning Analytics and Visualization, Georgia Tech
Advisor: Dr. Subhrajit Guhathakurta, Co-author: Seung Jae Lieu
- Aims to understand how individual level of car dependency moderates the appeal of streetscapes and servicescapes and influences where they choose to dine out.
 - Using POI attributes and sales from SafeGraph, Yelp review data (text, images), and Google Street View images to holistically assess the appeal of POI.
 - Published in Journal of Urban Design (Accepted and Under Production)
- 10. Can Thanksgiving Destinations Predict Climate Migration Patterns?** Aug. 2023 - Jan. 2024
Center for Spatial Planning Analytics and Visualization, Georgia Tech
Advisor: Dr. Subhrajit Guhathakurta, Co-author: Uiyeong Hwang
- Used weekly foot-traffic data from SafeGraph to extract travel patterns during Thanksgiving holidays.
 - Compared the destination choices from Thanksgiving holiday travel patterns and travel patterns after major hurricane events through Spearman's rank correlation coefficient.
 - Published in Findings
- 9. Linking Activities, Expenditures, and Energy Use into an Integrated Systems Model to Understand and Predict Energy Futures (ongoing)** Aug. 2023 - present
Center for Spatial Planning Analytics and Visualization, Georgia Tech

Advisor: Dr. Subhrajit Guhathakurta (PI), Dr. Eric Williams (PI), Dr. Eric Hittinger (Co-PI)

Co-authors: Sinoun Phoung, Connor Liu

- Research in two fold: How does the “new normal” teleworking affect residential, commercial, and transportation energy use? How is e-commerce affecting people’s time use and residential, commercial, and industrial energy use?
- National datasets, including RECS, NHTS, ATUS are employed.
- Published in Environmental Research: Infrastructure and Sustainability, Findings.

8. A Bibliometric Literature Review of Artificial Intelligence, Machine Learning, and Deep Learning in Urban Studies

Oct. 2022 – Jul. 2023

Center for Spatial Planning Analytics and Visualization, Georgia Tech

Advisor: Dr. Subhrajit Guhathakurta

Co-authors: Uijeong Hwang, Dr. Bon Woo Koo

- Conducted LDA topic modeling using Python Gensim library in Jupyter Notebook and categorized planning research articles that applied or discussed AI, machine learning, or deep learning
- Discovered research trends of AI application in planning research
- Reviewed article abstracts to compare how AI is differently applied in different topics

7. Mental Health Facility Visits Before and After the Outbreak of Covid-19: The Role of Walkable Built Environment

Oct. 2022 - present

Team members: Dr. Bon Woo Koo, Uijeong Hwang

- Examined how the built environment has affected/moderated mental health during the COVID-19 pandemic in Atlanta, Georgia using SafeGraph data
- Published in Journal of Transport and Health

6. Urban Sensing of Pedestrians through Integrated, Cost-effective, and Scalable Audio Sensor Networks (ongoing)

Sep. 2022 - present

Center for Spatial Planning Analytics and Visualization, Georgia Tech

Advisor: Professor Subhrajit Guhathakurta (PI), Professor Alexander Lerch (Co-PI)

Team members: Dr. Noah Posner, Dr. Bon Woo Koo, Pavan Seshadri

- The project aims to investigate the usefulness of microphones for estimating pedestrian traffic
- Experimented with hardware components in a pedestrian-heavy campus environment to see how far audio technology can be pushed to sense people and to assess the possibilities for scaling up
- Used the Pyramid Scene Parsing Network (PSPNet) on the surveillance camera to provide ground truth data for the pedestrian sensing training dataset
- Publications & Data: <https://urbanaudiosensing.github.io/>

5. A CyberGIS-enabled Pandemic Warning System Using Social Media Data

Sep. 2021 – May 2022

CyberGIS Center for Advanced Digital and Spatial Studies, UIUC

Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)

- Compared ARIMA, LSTM, and Facebook Prophet models to predict regional COVID-19 risk using Python and Jupyter Notebook
- Used TensorFlow Keras API to apply RNN for time series forecasting
- Established a COVID-19 risk assessment indicator using Twitter mobility data

4. CyberGIS-VIZ, 2021

Sep. 2021 – May 2022

CyberGIS Center for Advanced Digital and Spatial Studies, UIUC

Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)

Role: Group Member

- CyberGIS-Viz is an open-source software tool for interactive geospatial visualization and scalable visual analytics
- Website: <https://github.com/cybergis/CyberGIS-Viz>
- Used Python, CyberGISX and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)

3. Development and Validation of Regional Models of HIV Vulnerabilities and Solutions, 2021

Sep. 2021 – May 2022

CyberGIS Center for Advanced Digital and Spatial Studies, UIUC

Advisor: Dr. Shaowen Wang, Dr. Su Han (team leader)

- Supported development of a CyberGIS application called Scenario Analysis Mapper where spatiotemporal patterns of HIV rates in the US counties are visualized using multiple and coordinated views. A two-part model runs in the back-end to forecast HIV rates and the modeling result is visualized on the front-end.
- Website: <http://su-gis.iptime.org/HIV>
- Using Python, R, CyberGISX and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)

2. Analysis of the Subway Ridership Change in Seoul after the Outbreak of COVID-19

June – Aug. 2020

Environmental Spatial Informatics & Disaster Prevention Lab, Yonsei University

Advisor: Dr. D.K. Yoon

Co-author: You-jeong Hong

- Categorized the time series pattern of ridership demand after the outbreak of COVID-19 in each subway station in Seoul using open ridership data
- Used Python to process data, K-means clustering in SAS
- Awarded by Seoul Institute for Excellence in Research Paper (\$1,000)

1. A Comparative Analysis of Trends of Disaster Risk Research using Topic Modeling & Network Analysis

Jan. – Aug. 2020

Environmental Spatial Informatics & Disaster Prevention Lab, Yonsei University

Advisor: Dr. D.K. Yoon

- Conducted LDA topic modeling and Gephi network analysis to categorize disaster research in domestic journals and foreign journals
- Published in KOSHAM

CAPSTONE PROJECTS

PaRIT (Planning and Regulation Information Tool) Development

Aug. 2021 – May 2022

Capstone project at UIUC

Advisor: Assistant Professor Dustin Allred, AICP & Dr. Lewis Hopkins

- Created a web map that links existing city plans and regulations into the City of Urbana map.
- Defined use cases and wrote a technical documentation so that the City of Urbana and continue to update the map.
- Used ArcGIS Online and Python ([Website](#))

Korean Language(Hangeul) Education Mobile AR App, DictionARy

Mar.– June 2020

Capstone project at Yonsei University Media System Lab

Supervisor: Professor Tack Don Han

- Developed a mobile AR app using Unity Vuforia engine that recognizes Korean language alphabet cards and guides users to combine correct cards.
- GitHub: <https://github.com/bravoyourlif/DictionARy>

Projection-based AR Evacuation Simulator using Kinect for Windows V2 and Unity

Mar.– June 2019

Capstone project at Yonsei University Media System Lab

Supervisor: Professor Tack Don Han / Role: Project leader (among three members)

- Developed an on-desk AR simulator that recognizes a blueprint in real-time and calculates the evacuation way and time of the number of people a user indicated through placing tangible color blocks on the blueprint
- Combined Floyd-Warshall algorithm and Dijkstra algorithm to reduce operating time in wayfinding process
- GitHub: <https://github.com/bravoyourlif/PARES>

TEACHING

Teaching Assistant

Spring 2022

Department of Natural Resources and Environmental Sciences at UIUC

- Course: NRES100 Fundamentals of Environmental Science (Virtual)
- Managed online weekly discussions, assignments, and exams

Teaching Assistant

Fall 2021

Department of Urban and Regional Planning at UIUC

Presiding Instructors: Dr. Dustin Allred, Dr. Lewis Hopkins

- Course: UP510-DA Plan Making
- Managed the PaRIT (Planning and Regulation Information Tool) development team
- Developed PaRIT using ArcGIS Online and Python ([Website](#))

Teaching Assistant (based on R)

Fall 2020, Spring 2021

Department of Urban and Regional Planning at UIUC

Presiding Instructors: Dr. Fang Fang, Dr. Bumsoo Lee

- Courses: UP494 Advanced Data Science for Planners, UP199 Data Science for Planners, UP460 Urban Transportation Modeling
- Graded and worked as a supplemental instructor for weekly R lab sessions (All courses)
- Instructed five R modeling sessions (UP460)

Teaching Assistant (based on Python)

Winter, Spring 2020

Yonsei University Liberal Education for Freshmen

- Course: YCS1001 Computational Thinking and SW Programming
- Instructed lab sessions once a week
- Created and graded exams and final project materials.

Tutor for Operating Systems (based on C and C++)

Spring 2019

Yonsei OSE (Open Smart Education) Center

- Taught and supported five undergraduate students in an Operating Systems course in Computer Science and Engineering major

AWARDS & SCHOLARSHIPS

Graduate Assistantship & Financial Award (approximately \$45,000)

20-21 Academic Year

University of Illinois at Urbana-Champaign

Excellent Research Paper Award (\$1,000)

Nov. 2020

Seoul Institute

- "Analysis of the Subway Ridership Change in Seoul after the Outbreak of COVID-19" Yoo-Jeong Hong, **Chaeyeon Han**

Excellent Volunteering Mentor of Children

Nov. 2019

Gangseo I-will center, Seoul

Honors roll (GPA : 4.03/4.3)

Spring 2019

Department of Computer Science and Engineering, Yonsei University

1st place award in Computer Science Exhibition (2 awards) Yonsei University, awarded among 30 teams	Spring 2019, 2020
Technology Assistant Scholarship (\$4,375) Graduate School of International Studies, Yonsei University	Sep. 2018 – Aug. 2019
Excellent Tutor Scholarship (\$250) Yonsei OSE (Open Smart Education) center, for tutoring Operating System	Spring 2019

EXTRACURRICULAR ACTIVITIES

School of City and Regional Planning SPA (Student Planning Association) <i>Ph.D. Representative, Georgia Tech School of City and Regional Planning</i>	Sep. 2023 - May 2024
BIGWAVE, Korean Youth Climate Change Network <i>Member of Researcher Network</i>	Aug. 2020 – Aug. 2022
<ul style="list-style-type: none"> Participated in youth climate actions in South Korea and study climate change related topics 	
Codable, Korean Coding Club at University of Illinois <i>Member of VR/AR Team</i>	Aug. 2021 – May 2022
<ul style="list-style-type: none"> Study and develop Unity VR/AR applications 	
Korean Student Association, KSA Graduate Team Staff <i>Graduate Team Staff</i>	Feb. 2021 – May 2022
<ul style="list-style-type: none"> Facilitated community building between Korean graduate students Group leader for social bubble activity 	
Student Council of the Department of Computer Science and Engineering <i>Member of Public Relations Group (4 members)</i>	Mar. – Dec. 2015
<ul style="list-style-type: none"> Planned and dealt with annual events including student autonomic activities, meetings between students and professors 	
Yonsei English Society, YES <i>Member of club YES (English free-talking club)</i>	Mar. – July 2018
<ul style="list-style-type: none"> Introduced Korean culture to exchange students 	

VOLUNTEERING

'Inside-out Mentor Group' at Gangseo I-will Center, Seoul, South Korea <i>Volunteer Mentor for Unprivileged Children</i>	May – Nov. 2019
<ul style="list-style-type: none"> Tutor of math, Korean literature, and basic programming 	
Start-up enterprise '7Pictures' <i>Project Manager</i>	Aug. 2016 – Dec. 2017
<ul style="list-style-type: none"> As a member of a start-up enterprise, ran an art field crowdfunding platform, conducted art projects, and planned visual art exhibitions 	

SKILL SUMMARY

Geographic Information Systems

ArcGIS Desktop, ArcGIS Pro, ArcGIS Online, QGIS, CyberGIS, Mapbox

Programming and Other Computer Science Skills

- Most proficient: Python, R
- Have Experience: C, C++, PHP, JavaScript, Java, Unity C#, HTML, CSS, MySQL, NodeJS, EJS