

# Chaeyeon Han

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## PROFILE

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Transdisciplinary student with research interests in **Geo AI, Geo Data Science, Big Data, Data Visualization, CyberGIS, Disaster Resilience, Digital Cartography, and Urban Studies**. Also enjoys experiencing and creating VR/AR (Virtual Reality/Augmented Reality) applications.

## EDUCATION

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<b>Master of Urban Planning</b> University of Illinois at Urbana-Champaign Cumulative GPA: 4.0/4.0	Aug. 2020 – May 2022
<b>Bachelor of Science in Computer Science and Engineering</b> Yonsei University, Seoul, Republic of Korea CS major GPA: 3.71/4.0 Junior/Senior GPA: 3.8/4.0	Mar. 2015 – Aug. 2020
<b>Bachelor of Science in Urban Planning and Engineering</b> Yonsei University, Seoul, Republic of Korea UP major GPA: 3.92/4.0	Mar. 2018 – Aug. 2020

## RESEARCH EXPERIENCE

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<b>A CyberGIS-enabled Pandemic Warning System Using Social Media Data</b> CyberGIS Center for Advanced Digital and Spatial Studies, University of Illinois <i>Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)</i> • Currently developing and comparing ARIMA, LSTM, Facebook Prophet models to predict regional COVID-19 risk using Python and Jupyter Notebook • Also using TensorFlow Keras API to apply RNN for time series forecasting • Establishing a COVID-19 risk assessment indicator using twitter mobility data	Sep. 2021 – May 2022
<b>CyberGIS-VIZ, 2021 (ongoing)</b> CyberGIS Center for Advanced Digital and Spatial Studies, University of Illinois <i>Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)</i> <i>Role: Group Member</i> • CyberGIS-Viz is an open-source software tool for interactive geospatial visualization and scalable visual analytics • Website: <a href="https://github.com/cybergis/CyberGIS-Viz">https://github.com/cybergis/CyberGIS-Viz</a> • Using Python, CyberGISX and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)	Sep. 2021 – May 2022
<b>Development and Validation of Regional Models of HIV Vulnerabilities and Solutions, 2021 (ongoing)</b> CyberGIS Center for Advanced Digital and Spatial Studies, University of Illinois <i>Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)</i> <i>Role: Group Member</i> • Developing a CyberGIS application called Scenario Analysis Mapper where spatiotemporal patterns of HIV rates in the US counties is visualized using multiple and coordinated views. Two-part model runs in the back-end to forecast HIV rates and the modeling result is visualized on the front-end. • Website: <a href="http://su-gis.iptime.org/HIV">http://su-gis.iptime.org/HIV</a> • Using Python, R, CyberGISX and JavaScript Libraries (Leaflet, D3, PlotlyJS, geostats, jQuery, Bootstrap)	Sep. 2021 – May 2022

## **Analysis of the Subway Ridership Change in Seoul after the Outbreak of COVID-19**

June – Aug. 2020

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Environmental Spatial Informatics & Disaster Prevention Lab, Yonsei University

*Awarded by Seoul Institute for Excellency in Research Paper (\$1,000)*

- 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

## **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: Professor D.K. Yoon*

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

## **PROJECTS**

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### **PaRIT (Planning and Regulation Information Tool) Development**

Aug. 2021 – May 2022

Capstone project with the City of Urbana

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

- Creating a web map that links existing city plans and regulations into the City of Urbana map.
- Defining use cases and writing a technical documentation so that the City of Urbana can continue to update the map.
- Used ArcGIS Online and Python

### **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.
- Git: <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
- Git: <https://github.com;bravoyourlif/PARES>

## **TEACHING EXPERIENCE**

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### **Teaching Assistant**

Aug. 2021 – May 2022

City of Urbana & Department of Urban and Regional Planning at University of Illinois at Urbana-Champaign

- Course: UP510-DA Plan Making
- Managing the PaRIT (Planning and Regulation Information Tool) development team
- Developing PaRIT using ArcGIS Online and Python

### **Teaching Assistant (based on R)**

Aug. 2020 – May 2021

Department of Urban and Regional Planning at University of Illinois at Urbana-Champaign

- 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)**

Jan. – June 2020

- Yonsei University Liberal Education for Freshmen
- Course: YCS1001 Computational Thinking and SW Programming
  - Instructed lab sessions once a week (Winter and Spring)
  - Created and graded midterm exam, final exam, and final project materials.

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

Mar. – June 2019

Yonsei OSE (Open Smart Education) Center

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

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**WORKING & VOLUNTEERING EXPERIENCE**

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**CyberGIS Center for Advanced Digital and Spatial Studies, University of Illinois at Urbana-Champaign**

Sep. 2021 – May 2022

*Research Assistant*

- Advisor: Professor Shaowen Wang, Teaching Assistant Professor Su Han(team leader)
- Developing time series forecasting models using Python and Jupyter Notebook
- Working on project “Development and Validation of Regional Models of HIV Vulnerabilities and Solutions” with PIs: Dr. Dolores Albarracin and Dr. Sally Chan

**Environmental Spatial Informatics & Disaster Prevention Lab, Yonsei University**

Jan. – Oct. 2020

*Research Assistant Internship*

- Advisor: Professor D.K. Yoon
- 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

**‘Inside-out Mentor Group’ at Gangseo I-will Center, Seoul, South Korea**

May – Nov. 2019

*Volunteer Mentor for Unprivileged Children*

- Tutor of math, Korean literature, and basic programming

**Start-up enterprise ‘7Pictures’**

Aug. 2016 – Dec. 2017

*Project Manager (among four members)*

- As a member of a start-up enterprise, ran an art field crowdfunding platform, conducted art projects, and planned visual art exhibitions

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**PUBLICATION**

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*Journal of the Korean Society of Hazard Mitigation [KOSHAM]*

“A Comparative Analysis of Trends of Disaster Risk Research using Topic Modeling & Network Analysis”

**Chaeyeon Han**, Woosik Kim, D.K. Yoon, *Journal of the Korean Society of Hazard Mitigation [KOSHAM]*, Vol.21, No.5 (Oct. 2021), pp.1~10. ISSN 2287-6723(Online)

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**POSTERS**

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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

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**PRESENTATION**

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**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 (expected).

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 (expected).

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

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*Guest Lecture for GEOG 106 Geographies of Globalization, University of Illinois at Urbana-Champaign*  
**Chaeyeon Han**, "How did Japanese Occupation reform the City of Seoul? The Discourse around Japanese Occupation", Nov. 4 (2021)

## AWARDS & SCHOLARSHIPS

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<b>Graduate Assistantship &amp; Financial Award (approximately \$45,000)</b> University of Illinois at Urbana-Champaign	2020-21 Academic Year
<b>Excellent Research Paper Award (\$1,000)</b> Seoul Institute • "Analysis of the Subway Ridership Change in Seoul after the Outbreak of COVID-19" Yoo-Jung Hong, <b>Chaeyeon Han</b>	Nov. 2020
<b>Excellent Volunteering Mentor of Children</b> Gangseo I-will center, Seoul	Nov. 2019
<b>Honors roll (GPA : 4.03/4.3)</b> Department of Computer Science and Engineering, Yonsei University	1 <sup>st</sup> Semester, 2019
<b>1<sup>st</sup> place award in Computer Science Exhibition (2 awards)</b> Yonsei University, awarded among 30 teams	Spring 2019, Spring 2020
<b>Technology Assistant Scholarship (\$4,375)</b> Graduate School of International Studies, Yonsei University	Sep. 2018 – Aug. 2019
<b>Excellent Tutor Scholarship (\$250)</b> Yonsei OSE (Open Smart Education) center, for tutoring Operating System	June 2019

## EXTRACURRICULAR ACTIVITIES

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<b>BIGWAVE, Korean Youth Climate Change Network</b> <i>Member of Researcher Network</i>	Aug. 2020 – present
• Participate in youth climate actions in South Korea and study climate change related topics	
<b>Codable, Korean Coding Club at University of Illinois</b> <i>Member of VR/AR Team</i>	Aug. 2021 – present
• Study and develop Unity VR/AR applications	
<b>Korean Student Association, KSA Graduate Team Staff</b> <i>Graduate Team Staff</i>	Feb. 2021 - present
• Facilitate community building between Korean graduate students	
• Group leader for social bubble activity (small scale gathering)	
<b>Student Council of the Department of Computer Science and Engineering</b> <i>Member of Public Relations Group (4 members)</i>	Mar. – Dec. 2015
• Planned and dealt with annual events including student autonomic activities, meetings between students and professors	

- Introduced Korean culture to exchange students

## **SKILL SUMMARY**

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### **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

### **Python Libraries**

Plotly, Pandas DataFrame, GeoPandas, SciPy, Tweepy, scikit-learn, TensorFlow, TensorFlow Keras, Gensim

### **IDE**

Visual Studio, Eclipse, gcc/g++, Jupyter Notebook, PyCharm, CyberGISX