

CONTACT ADDRESS: Geospatial Information Sciences Program
School of Economic, Political, and Policy Sciences
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■ EDUCATION

- 12/2025 **Ph. D. in Geospatial Information Sciences**
Master of Science in Social Data Analytics and Research
The University of Texas at Dallas, Richardson, United States
• Field of study: Spatial statistics and Spatial optimization
• Dissertation: Enhancing the Quality and Efficiency of Spatial Optimization Solutions through Geospatial Techniques: Spatial Sampling, Small Area Estimation, and Imputation.
- 12/2025 **Master of Science in Geosciences**
The University of Texas at Dallas, Richardson, United States
• Field of study: Hydrology, Climate change resilience, and Geohazards
• Thesis: Evaluation of Land Use-based Coherence Changes after Earthquake using Spatial Autocorrelation Methods
- 2015 **Master of Arts in Geography Education**
Seoul National University, Seoul, South Korea
• Field of study: GIS, Remote sensing, and Spatial statistics
• Thesis: An Analysis of the Correlation between Intra-urban Land Surface Temperature Distribution and Socio-economic Indexes: An application of Seoul area census output statistics and Landsat 7 ETM+ imagery
- 2013 **Bachelor of Arts in Geography Education**
Bachelor of Science in Geology
Kyungpook National University, Daegu, South Korea
• Certificate: Secondary School Teacher (GradeII) - Geography issued by the Ministry of Education, Republic of Korea

■ RESEARCH INTERESTS | DOMAIN SKILLS

- Interests Urban, Climate change resilience, Participatory GIS, Geovisualization
- Skills Spatial modeling, Spatial optimization, Passive and active remote sensing, Machine/Deep learning, GIS Programming (R, Python, Java, Fortran)

■ PROFESSIONAL EXPERIENCE

- 01/2021 – **Research Assistant | Univ. of Texas at Dallas, Richardson, U.S.**
12/2025 • Implemented spatial statistical models to estimate missing or unobserved spatial data, enhancing the accuracy and efficiency of spatial optimization model, funded by NSF.

- 10/2018 – **GIS Researcher | Suwon Research Institute, Suwon, South Korea**
- 12/2019
- Built GIS workflows and analysis models integrating remote sensing and geodatabases to support infrastructure and ecological network planning.
 - Results informed municipal ordinances and policies Evaluation of the growth and health of street trees in Suwon.
 - Collaborated with cross-functional teams of engineers, faculty, and stakeholders to build and test geospatial tools, contributing to location intelligence platforms supporting infrastructure planning.
- List of Projects:**
- The study on designation of wildlife protection area in Suwon
 - Ecosystem research and producing the biotope map in Suwon
 - Provincial environment administration plan: Developing ecological network
 - The countermeasure for the sunset provision on urban parks in Suwon
 - A vision and strategies of urban parks and green spaces for Suwon 2030
- 09/2015 – **GIS Researcher | Gyeonggi Research Institute, Suwon, South Korea**
- 08/2017
- Analyzed architectural and infrastructure data across 31 cities in Gyeonggi using GIS, contributing to policies on historic architecture preservation and regional planning strategies.
- List of Projects:**
- Outcomes and development measures of Gyeonggi-do's architectural master plan
 - Investigation and management methods of modern architectural assets in Gyeonggi-do
 - Improvement methods for the management of the royal tombs of the Joseon dynasty located in Gyeonggi-do
 - Policy improvement for earthquake disaster response in Gyeonggi-do
- 01/2009 – **GIS Analyst | Korea Army Geospatial-Intelligence Agency, South Korea**
- 11/2010
- Conducted daily GIS operations in a fast-paced environment, updating objects in South and North Korea, referring to satellite and airborne imagery.
 - Streamlined geodatabase management and implemented GIS-based analysis tools for mission planning.

■ PUBLICATIONS

- Lee, C.**, Chun, Y., and Kim, H., (2025), “Effects of small area estimation on a location covering model for flood evacuation,” Manuscript under review.
- Lee, C.**, and Kim, H., 2024, “Modeling land surface temperature using spatial statistical methods: A regression modeling approach to analyzing spatial patterns between temperature and demographic data in Seoul, South Korea,” *Journal of Cadastre & Land InformatiX* 54(2): 19-32. <http://doi.org/10.22640/lxsiri.2024.54.2.19>
- Lee, C.**, Kim, H., Chun, Y., and Griffith., D., 2024, “Delineations for police patrolling on street network segments with p -median location models,” *ISPRS International Journal of Geo-Information** 13(11): 410. <https://doi.org/10.3390/ijgi13110410>
*SCIE
- Hong, S. and **Lee, C.**, 2023, “Exploring the influence of sociodemographic backgrounds on money mule recruitment types in South Korea: An analysis of probabilities from machine learning classifiers,” *Deviant Behavior** 45(5): 752-769.
<https://doi.org/10.1080/01639625.2023.2263611> *SSCI
- Lee, C.**, Griffith, D.A., Chun, Y., and Kim, H., 2023, “Effects of geographically stratified random sampling initial solutions on solving a continuous surface p -median location problem using the ALTERN heuristic.” *Spatial Statistics** 57: 100768.
<https://doi.org/10.1016/j.spasta.2023.100768> *SCIE

Griffith, D. A., Agarwal, K., Chen, M., **Lee, C.**, Panetti, E. A., Rhyu, K., ... Yu, X., 2021, "Geo spatial socio-economic/demographic data: The existence of spatial autocorrelation mixtures in georeferenced data—Part I," *Transactions in GIS** 26(1): 72–87. <https://doi.org/10.1111/tgis.12826> *SSCI

Griffith, D. A., Agarwal, K., Chen, M., **Lee, C.**, Panetti, E. A., Rhyu, K., ... Yu, X., 2021, "Geo spatial socio-economic/demographic data: The existence of spatial autocorrelation mixtures in georeferenced data—Part II," *Transactions in GIS** 26(1): 88–99. <https://doi.org/10.1111/tgis.12834> *SSCI

Nam, J.H., Cho, H.E. and **Lee, C.**, 2019, "Analysis and evaluation on the surrounding urban environment of the royal tombs of the Joseon Dynasty for maintenance and local utilization: Focusing on the royal tombs of the Joseon Dynasty located in Gyeonggi Province," *Journal of the Korean Association of Regional Geographers* 25(4): 463-479. <http://dx.doi.org/10.26863/JKARG.2019.11.25.4.463>

Lee, C., Kim, E.Y. and Jeon, C.W. 2019, "Analysis of land cover changes using Landsat satellite imagery of Suwon, South Korea: from 1972 to 2017," *Suwon Studies* 15: 243-271. https://www.suwon.re.kr/board/downloadv.php?bo_table=suwon_research&wr_id=37&no=0

Nam, J.H., Cho, H.E. and **Lee, C.**, 2019, "A study on the analysis of the distribution status and regional characteristics of modern architecture in Gyeonggi and Incheon: Focusing on modern architecture near railroads in operation constructed under Japanese rule," *Journal of the Korean Association of Regional Geographers* 25(1): 118-135. <http://dx.doi.org/10.26863/JKARG.2019.02.25.1.118>

Nam, J.H., Han, J.A. and **Lee, C.***, 2016. "The reason of 'Vacant houses' formation and the method of management in Gyeonggi Province, Korea," *Sustainability* 8(4)**: 367. <http://dx.doi.org/10.3390/su8040367> *Correspondence **SCIE

Kim, M.S. and **Lee, C.**, 2015. "A service learning project using geospatial technologies: Community participation from the perspective of geotourism," *Journal of the Korean Cartographic Association* 15(3): 63-77. <http://dx.doi.org/10.16879/jkca.2015.15.3.063>

Lee, C., 2014. An analysis on landslide in Jeonwon town around Mt. Woomyeon through hydrology tool in GIS. *Social Science Education* 17: 71-81. <http://kiss.kstudy.com/thesis/thesis-view.asp?key=3375593>

Lee, C., and Kim, H., 2013. Emerging web 2.0 period and expectation of GIS application with smart grid system. *Social Science Education* 16: 93-112. <http://kiss.kstudy.com/thesis/thesis-view.asp?key=3375588>

Lee, C., 2012. Producing outline maps for effective world geography education. *Journal of Geography Education* 56: 43-53. <http://kiss.kstudy.com/thesis/thesis-view.asp?key=3213776>

■ PRESENTATIONS

"Effects of small area estimation on a location covering model for flood evacuation," The Korean Cartographic Association Spring Conference, Seoul, Korea, May 31, 2025.

"Bridging spatial optimization and spatial statistics: Spatial estimation for enhanced solutions of location models," The American Association of Geographers 2024 Annual Meeting, Honolulu, Hawaii, April 17, 2024

"Impacts of missing values on covering spatial optimization location model: A simulation experiment," The American Association of Geographers 2024 Annual Meeting, Honolulu, Hawaii, April 16, 2024

"Community engagement GIS for sustainability of urban green spaces at UT Dallas: A web mapping tool integrated with deep learning for tree analysis," The 70th North American Meetings of the Regional Science Association International, San Diego,

California, November 16, 2023

“Spatial autocorrelation informed approaches to solving location-allocation problems: spatial autocorrelation-informed sampling for initial heuristic solutions,” The American Association of Geographers 2023 Annual Meeting, Denver, Colorado, March 26, 2023

“Spatial autocorrelation informed approaches to solving location-allocation problems: Spatial autocorrelation-informed sampling for initial heuristic solutions,” The 69th North American Meetings of the Regional Science Association International, Montréal, Québec, November 11, 2022

“Time-varying delineation of police patrol areas: A *p*-median problem approach for daytime and nighttime patrolling,” The American Association of Geographers 2022 Virtual Annual Meeting, February 25, 2022.

“An exploratory analysis of Methane (CH₄) in the Permian Basin using zonal Statistics for remotely sensed data,” The GIS Day 2021, Dallas, Texas, November 17, 2021.

“Delineating police patrol areas using a *p*-median location problem,” The 68th North American Meetings of the Regional Science Association International, Denver, Colorado, November 12, 2021.

“An analysis on small-scale topographic maps issued by foreign governments: From production to application,” The Korean Cartographic Association Spring Conference, Seoul, Korea, June 2, 2018.

“The displacement measurement for the Pohang earthquake on 15th November through the differential interferometry SAR method,” The Korean Geomorphological Association Winter Conference, Seoul, Korea, February 9, 2018.

“The reason of vacant houses formation and the method of management in Gyeonggi Province,” Korean Cartographic Association Spring Conference, Seoul, Korea, June 11, 2016.

“Topographic change detection by using SAR interferometry,” Association of Korean Geographers Spring Conference, Seoul, Korea, May 28, 2016.

“An analysis on correlation between intra-urban land surface temperature distribution and socio-economic indexes,” Korean Cartographic Association Fall Conference, Seoul, Korea, December 13, 2014.

“Creating geotourism contents for Mt. Gwanak based on web GIS,” Korean Association of Geographic and Environmental Education Fall Conference, Seoul, Korea, December 13, 2014.

■ TEACHING EXPERIENCE

“EPPS 4317: Python programming for social sciences,” Univ. of Texas at Dallas (48hrs) July 7-Aug 15, 2025

“Spatial data science: Composite index in ArcGIS pro,” Univ. of Texas at Dallas, (2hrs) Oct 3, 2024

“Geospatial technology: Sense of place mapping,” Dongtan Global High School, (8hrs) Oct 28-Nov 5, 2020

“Field trip for participatory GIS: Barrier free mapping,” Seoul Sung Bo High School, (25hrs) Aug 12-16, 2019

“GIS methods for regional research,” Suwon Sustainable City Foundation, (16hrs) May 24-Jun 21, 2019

“Introduction to active remote sensing and exercises,” Korea Military Academy, (2hrs) May 28, 2018

“Public health GIS,” School of Public Health, Seoul Nat'l Univ., (12hrs) Sep 1-Oct 30, 2013

“Cartography lab,” Dept. of Geography Education, Seoul Nat'l Univ., (9hrs) Mar 1-Aug 31, 2013

■ GRANTS AND AWARDS

Scholarship of Korean Alumni at the University of Texas at Dallas (\$1,000, award) May 11, 2024
Sim Travel Awards, Korea-America Assoc. Geog. & Env. Sci., U.S. (\$500, award) Apr 18, 2024
GSA Travel Awards, Graduate Student Assembly at the UT Dallas (\$500, award) Apr 3, 2024
Betty and Gifford Johnson Travel Awards, OGE at the UT Dallas (\$2,000, award) Feb 27, 2024
1st Kium Scholarship, DK Foundation, Texas, U.S. (\$3,000, award) Nov 18, 2023
Pioneer Student Research Grants, Pioneer Natural Resources Inc. (\$2,000, award) Mar 20, 2023
Betty and Gifford Johnson Travel Awards, OGE at the UT Dallas (\$1,235, award) Jan 27, 2023
Pioneer Student Research Grants, Pioneer Natural Resources Inc. (\$2,100, award) Mar 21, 2022
4th place in Idea competition, Korea Agency for Infra-Technology, (\$300, award) Sep 7, 2020
Best Volunteer Award, UNEP National Committee for South Korea (\$900, award) Sep 7, 2013
Lecture and Research Scholarship, Seoul National University (\$5,500, grant) 2013
41st Scholarship, Korea Scholarship Foundation for Future Leaders (\$9,000, award) Feb 22, 2011
3rd place in Student research competition, Suwon Development Center (\$900, award) Dec 1, 2008

■ PROFESSIONAL SERVICE

Volunteer Leadership

- 07/2023 – **President | Korean Student Association at UT Dallas**
06/2024 • Projects: Samsung Electronics job informational meeting for Korean students, Korean job informational meeting with Lotte Chemical and Lotte Fine Chemical
- 08/2013 – **Vice President | UNEP Angel**
01/2014 Students group in UN Environment Programme Nat'l Committee for Korea
• Projects: 350ppm Carbon Campaign Playground with UNEP Angel, Green Market, Clean up the World in Yeosu with GS Caltex
- 02/2013 – **Division Head | Academic Affairs Division in UNEP Angel**
07/2013 • Projects: Environment Reports Competition, Conference on Environment
- 07/2012 – **Provincial Head | Daegu Provincial Division in UNEP Angel**
02/2013 • Projects: Green Market with Beautiful Reuse Store, Forum about UNEP Angel in Daegu

Volunteer Activities

- 03/2016 – **Instructor | Geospatial technologies**
12/2020 Department of Geography Education, Seoul National University, Korea
• GIScience, WebGIS, Community Engagement using GIS, Map Creation
- 03/2012 – **Volunteer | Environmental conservation activities**
Present The committee of ECOHUB, Office of Sustainability, UT Dallas.
Students group in UN Environment Programme Nat'l Committee for Korea
Korean Federation for Environmental Movement in Daegu
• Cultivating, Cleaning, Recycling, Education, Campaigns, and Donations
• Sustainability Honors at UT Dallas