Changmin Im

Assistant Professor

Department of Geography, Kongju National University
56, Gongjudaehak-ro, Gongju-si, Chungcheongnam-do, Republic of Korea
Tel: +82-041-850-8424
Phone: +82-10-8513-8836
E-mail: changminim@kongju.ac.kr
Home: changminim.com
ORCID ID: 0000-0002-5254-0995

EDUCATION

Ph.D. in Geography, Graduate School, Korea University, February 2024

- Dissertation: Spatio-temporal Modeling Approaches for Urban Health Issues: COVID-19 and Methamphetamine Cases (Supervisor: Professor Youngho Kim)

M.A. in Geography, Graduate School, Korea University, August 2018

- Dissertation: Spatio-temporal Analysis of Socio-environmental Determinants of Tuberculosis in Korea: 2008-2016 (Supervisor: Professor Youngho Kim)

B.A. in Geography Education, Korea University, February 2016

RESEARCH INTERESTS

1. GeoAI for Urban Sustainability

- GeoAI for Mental Health (especially, Depression) *(Primary Focus)*
- GeoAI for Illicit Drugs
- GeoAI-supported Urban Planning and Management

2. Public Health in Urban Geography

- Illicit Drug Spread (Methamphetamine, Opioid, Cannabis) *(Primary Focus)*
- Infectious Diseases (COVID-19, TB, ASF, HPAI)
- Non-communicable Disease (Preterm Birth)

3. GIS and Spatial Modeling

- Spatial Statistics and Analysis
- Advanced Spatial Modeling (ESF, GWR)

PUBLICATIONS

Publication Summary:

- **Peer-Reviewed Publications:** 18 papers (11 international, 7 domestic)
- **Paper Under Review:** 2 papers (international)
- **Papers in Preparation:** 1 paper (international)
- **Authorship:** 9 as 1st author, 1 as corresponding author, 6 as co-author
- **Government Reports:** 4 Books

| ***Note*****:** *In the list below, my name appears as* '**Im C**,' *which stands for Changmin Im.*

- **Im C**, Kim Y. 2026. GeoAI-driven spatial analysis of urban environmental factors and their impact on mental health (Under Review in Applied Geography) **[SCIE]**
- **Im C**, Kim Y. 2026. Daily commuting population and corresponding spread of infectious disease (Under Review in SSM-Public Health) **[SCIE]**
- **Im C**, Kim Y. 2025. Methamphetamine spread in the Seoul metropolitan area: Geographical random forest modeling approach. Applied Geography, 174, 103470, https://doi.org/10.1016/j.apgeog.2024.103470 **[SCIE]**
- **Im C**, Curtis A, Song D, Kim OS. 2024. Mapping African swine fever and highly pathogenic avian influenza outbreaks along the Demilitarized Zone in the Korean peninsula. Transboundary and Emerging Diseases, https://doi.org/10.1155/2024/8824971 **[SCIE]**
- **Im C**, Chung J, Kim H, Chung S, Yoon TK. 2022. Are seed dispersal and seedling establishment distance- and/or density-dependent in naturally regenerating larch patches? Within-patch scale analysis using eigenvector spatial filtering model. Forest Ecology and Management, 531, 120763. https://doi.org/10.1016/j.foreco.2022.120763 **[SCIE]**
- Kim H, Choe SA, Kim OJ, Kim SY, Kim S, **Im C**, Kim YS, Yoon TK. 2021. Outdoor air pollution and diminished ovarian reserve among infertile Korean women. Environmental health and preventive medicine, 26(1), 1-8. https://doi.org/10.1186/s12199-021-00942-4 **[SCIE/SSCI]**
- **Im C**, Kim Y. 2021. Local Characteristics Related to SARS-CoV-2 Transmissions in the Seoul Metropolitan Area, South Korea. International Journal of Environmental Research and Public Health, 18(23), 12595. https://doi.org/10.3390/ijerph182312595 **[SCIE/SSCI]**
- Choe SA, Kim S, **Im C**, Kim SY, Wellenius G, Kim YS, Yoon TK, Kim DK. 2021. Land use and semen quality: A fertility center cohort study. PLOS ONE 16(8): e0255985. https://doi.org/10.1371/journal.pone.0255985 **[SCIE]**
- **Im C**, Kim Y. 2021. Spatial pattern of tuberculosis (TB) and related socio-environmental factors in South Korea, 2008-2016. PLOS ONE 16(8): e0255727. https://doi.org/10.1371/journal.pone.0255727 **[SCIE]**
- Choe SA, Kim S, **Im C**, Kim SY, Kim YS, Yoon TK, Kim DK. 2020 Nighttime environmental noise and semen quality: A single fertility center cohort study. PLOS ONE 15(11): e0240689. https://doi.org/10.1371/journal.pone.0240689 **[SCIE]**

- Kim OS, Václavík T, **Im C**. High risk areas of African swine fever along the inner-border in the Korean peninsula: Has it come from North Korea across the Demilitarized Zone? (In Preparation)

7 Domestic Publications

- **Im C**, Lee J, Kim Y. 2026. Spatiotemporal analysis of urban environmental factors associated with depressive symptoms in the Seoul Metropolitan Area using explainable GeoAI: Focusing on the pre- and post-COVID-19 comparison. The Geographical Journal of Korea, 60(3), 305-324. https://doi.org/10.22905/kaopqj.2026.60.3.9 **[KCI]**
- Lee J, **Im C**, Kim Y. 2026. Changes in the spatial patterns of depressive symptoms before, during, and after the COVID-19 pandemic in Korea: Evidence from spatial panel models and multiscale geographically weighted regression. Journal of the Association of Korean Geographers, 15(3), 477-497. https://doi.org/10.25202/JAKG.15.3.7 **[KCI]**
- Park S, **Im C**, Kim G, Lee J. 2024. Multilevel analysis on spatial distribution and socio-environmental factors of dental caries in Korean children. Journal of the Korean Academy of Pediatric Dentistry, 51(2), 40-54. https://doi.org/10.5933/JKAPD.2024.51.1.40 **[KCI]**
- Koo K, **Im C**, Yang B. 2022. Advancement on an Ecosystem-based Assessment System to Determine a New Special-purpose District in Terms of National Park Management. The Geographical Journal of Korea, 46(4), 353-366. http://www.riss.kr/link?id=A108417437 **[KCI]**
- **Im C**, Kim Y. 2021. Spatially Filtered Multilevel Analysis on Spatial Inequality of **Tuberculosis** in Gyeongsangbuk-do, Korea. Journal of Health Informatics and Statistics, 46(1), 88-99. https://doi.org/10.21032/jhis.2021.46.1.88 **[KCI]**
- Lee S, Koo KA, **Im C**, Yoon TK. 2021. Citizens' Perception on and Attitudes toward Use and Management of National Parks in South Korea. Journal of Environmental Impact Assessment, 30(2), 89–104. https://doi.org/10.14249/EIA.2021.30.2.89 **[KCI]**
- **Im C**, Kim Y. 2016. Spatial socio-environmental analysis of tuberculosis in South Korea using eigenvector spatial filtering methodology. Journal of the Korean Cartographic Association, 16(3), 89-101. http://dx.doi.org/10.16879/jkca.2016.16.3.089 **[KCI]**

4 Government Reports (in Korean)

- Choi H, et al. (including **Im C**). 2020. Establishing a Foundation for Integrated Environmental Planning Management of National and Local Land. Korea Environment Institute, Ministry of Environment, Korea (in Korean)
- Choi H, et al. (including **Im C**). 2019. Spatial Environmental Plan for Integrated Management of Land-Environmental Planning (I). Korea Environment Institute, Ministry of Environment, Korea (in Korean)
- Choi H, et al. (including **Im C**). 2019. Spatial Environmental Plan for Integrated Management of Land-Environmental Planning (II). Korea Environment Institute, Ministry of Environment, Korea (in Korean)
- Koo K, et al. (including **Im C**) 2019. Provision of the 3rd National Park Feasibility Assessment Criteria with Institutional Improvement, Korea Environment Institute, Ministry of Environment, Korea (in Korean).

CONFERENCE PRESENTATIONS

- Lee J, **Im C**. "Spatiotemporal Structural Changes in the Prevalence of Depressive Symptoms Due to COVID-19: An Integrated Application of Spatial Panel Models and MGTWR." Spring Conference of the Korean Cartographic Association, South Korea, May 30, 2026.
- Lee J, **Im C**. "Spatiotemporal Patterns of Depressive Symptoms and Urban Structural Factors: A Spatial Panel Model Analysis." Spring Conference of the Korean Urban Geographical Society, South Korea, April 25, 2026.
- **Im C**. "Spatiotemporal Patterns and Influencing Factors of Depression in the Chungcheong Region: A Spatial Panel Model Analysis" Autumn Conference of the Korean Cartographic Association, South Korea, November 29, 2025.
- **Im C**. "Spatial Distribution of African Swine Fever (ASF) and Highly Pathogenic Avian Influenza (HPAI) around the Demilitarized Zone (DMZ) in the Inter-Korean Border Region" Autumn Conference of Korea Environmental Policy and Administration Society, South Korea, October 30, 2025.
- **Im C**. "Analysis of Urban Environmental Factors for COVID-19 Blues Using Explainable Artificial Intelligence." Annual Meeting of the Korean Geographical Society, South Korea, December 6, 2024.
- **Im C**. "Mapping African Swine Fever and Highly Pathogenic Avian Influenza Outbreaks Along the Demilitarized Zone in the Korean Peninsula." Autumn Conference of the Korean Cartographic Association, South Korea, November 30, 2024.
- **Im C**. "Analysis of Drug Spread in the Seoul Metropolitan Area Using Machine Learning." Spring Conference of the Korean Cartographic Association, South Korea, May 25, 2024.
- **Im C**. "Methamphetamine Spread in the Seoul Metropolitan Area: Geographical Random Forest Modeling Approach." John Odland SAM student paper competition, American Association of Geographers (AAG), Hawaii, USA, 2024-04-17.
- **Im C**, Kim Y. "The Spread of Methamphetamine Use in the Seoul Metropolitan Area: Spatio-Temporal Random Forest Modeling Approach." 2nd Agenda DFG-NRF-Workshop, Dresden, Germany, 2023-07-07.
- **Im C**, Curtis A, Kim OS. "Local Characteristics Related to SARS-CoV-2 Transmissions in Seoul." Agenda DFG-NRF-Workshop, Seoul, South Korea, 2022-09-06.
- **Im C**, Curtis A, Kim OS. "Mapping African Swine Fever and Highly Pathogenic Avian Influenza Outbreaks Along the Demilitarized Zone in the Korean Peninsula." Agenda DFG-NRF-Workshop, Seoul, South Korea, 2022-09-05.
- **Im C**, Kim Y. "Spatially Filtered Multilevel Analysis on Spatial Inequality of Tuberculosis in Gyeongsangbuk-do, Korea." Conference of The Korean Cartographic Association 2020 Fall, Virtual Conference, 2020-12-12, (Presented in Korean).
- Choe SA, Kim S, **Im C**. "Proximity to Inland Water and Major Roadway of Residential Address and Ovarian Reserve: A Retrospective Cohort Study." International Society for Environmental Epidemiology (ISEE) Annual Conference 2020, Virtual Conference, 2020-

08-25.

- Choe SA, Kim DK, Kim S, **Im C**. "Environmental Noise and Semen Quality: A Single Fertility Center Cohort Study." International Society for Environmental Epidemiology (ISEE) Annual Conference 2020, Virtual Conference, 2020-08-25.
- **Im C**, Kim SH. "Layout for Historical Map." Conference of The Association of Korean Cultural and Historical Geographers 2017 Fall, Seoul, South Korea, 2017-08-24, (Presented in Korean).
- **Im C**, Kim Y. "Spatial Socio-Environmental Analysis of Tuberculosis in South Korea Using Eigenvector Spatial Filtering Methodology." Conference of The Korean Cartographic Association 2016 Fall, Seoul, South Korea, 2016-06-24, (Presented in Korean).

RESEARCH PROJECTS

Current Projects

- Spatio-temporal Machine Learning Modeling of Methamphetamine Spread in the Seoul Metropolitan Area (Funded by Korea University) March 2024 - February 2025
- Modeling and Visualization of 'Depression amid COVID-19' Using Spatio-temporal Machine Learning (Funded by National Research Foundation of Korea) July 2022 - June 2024

Completed Projects (participated as a junior researcher)

- The Effects of Natural and Artificial Environment on Reproductive Factors: A Study on the Construction of a Cohort for Prospective Infertile Couples (Funded by the National Research Foundation of Korea) March 2020 - February 2021
- Spatial Analysis on Seedling Distribution and Estimation of Seed Dispersal (Funded by the National Institute of Forest Science) March 2020 - November 2020
- Spatial Environmental Plan for Integrated Management of Land-Environmental Planning (Funded by the Ministry of Environment) March 2019 - August 2019
- Provision of the 3rd National Park Feasibility Assessment Criteria with Institutional Improvement (Funded by the Ministry of Environment) May 2018 - February 2019
- Spatial Analysis and Mapping of the National Geography in the Joseon Dynasty Based on HGIS (Funded by The Academy of Korean Studies) December 2017 - May 2018
- Spatio-temporal Analysis of Minority Groups in Modern Korean Era: Historical Context Analysis of the Japanese Colonial Statistical Data (Funded by the National Research Foundation of Korea) July 2016 - October 2017

AWARDS AND HONORS

- Finalist, John Odland SAM student paper competition, AAG (April 2024)
- KU Achievement Award, Graduate School, Korea University (May 2022)
  - Awarded as the top-performing graduate school student
- Junior Fellow Research Grant, Korea University ($3,000/year, 2021-2022)
- Excellence in Scholarship, Graduate School, Korea University ($2,000/year, 2021)
- Best Paper of Graduate Student, Association of Korean Geographers (December 2017)
- Academic Excellence Scholarship, College of Education, Korea University ($1,000, 2015)

PROFESSIONAL EXPERIENCES

Postdoctoral Research Fellow (March 2024 - February 2025)

- Geography Education, College of Education, Korea University

Lecturer

- College of Education, Korea University (Spring and Fall 2023, Spring and Fall 2024)
- College of Liberal Arts, Korea University (Fall 2022, Fall 2023)

Junior Researcher (May 2018 - August 2019)

- Korea Environment Institute (KEI), Department of Water Land Research

Research Assistant

- Fall 2016 / Spring 2017 / Spring and Fall 2020 / Spring and Fall 2021

Teaching Assistant

- Spring 2016 / Fall 2017 / Spring and Fall 2022

TEACHING EXPERIENCES

Lectures

- Urban Geography (Undergraduate) - Kongju National University, Spring 2025, Korea University, Fall 2023, Fall 2024
- Urban Planning and Management - Kongju National University, Spring 2025
- Rural Planning and Management - Kongju National University, Spring 2025
- Digital Cartography (Graduate) - Korea University, Fall 2024
- Population Geography (Undergraduate) - Korea University, Spring 2023, Spring 2024
- Regional Geography (Undergraduate) - Korea University, Spring 2024
- Cartography (Undergraduate) - Korea University, Fall 2023
- Digital Humanities (II) (Undergraduate) - Korea University, Fall 2022, Fall 2023

Others

Computer Skills

- GIS (ArcGIS, QGIS, GeoDa, GRASS GIS) - Advanced level
- R, Python - Advanced level
- Graphic Tools (e.g., Photoshop, Illustrator) - Advanced level

International Experiences

- Field Works:
  - Portugal - Porto, Lisbon, Madeira (2026)
  - USA - Hawaii (2024)
  - Germany - Dresden, Berlin, Frankfurt (2023)
  - Czech Republic - Prague (2023)
  - England - London (2018)
  - Scotland - Edinburgh, Inverness (2018)
  - Thailand - Chiang Mai (2018),
  - Mongolia - Ulaanbaatar (2016)
  - Travel: Japan - Tokyo (2022) / Indonesia - Bali (2018) / Taiwan – Taipei (2017) / Philippine - Manila (2015) / Japan - Osaka, Kyoto (2013) / USA - California (2012), New York (2012)