

# Changmin Im

## Assistant Professor

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## EDUCATION

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**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

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## RESEARCH INTERESTS

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### 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)<sup>2</sup>

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## PUBLICATIONS

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### Publication Summary:

- **Peer-Reviewed Publications:** 16 papers (11 international, 5 domestic)
- **Paper Under Review:** 2 papers (international)
- **Papers in Preparation:** 1 paper (international)
- **Authorship:** 8 as 1st author, 1 as corresponding author, 5 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)

## 5 Domestic Publications

- 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).

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## CONFERENCE PRESENTATIONS

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- **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." Autumn 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).

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## RESEARCH PROJECTS

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### 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

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## AWARDS AND HONORS

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- 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)

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## PROFESSIONAL EXPERIENCES

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### **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

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## TEACHING EXPERIENCES

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### **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

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## Others

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### 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:
  - 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)