Yonghun Suh

Office of Information & Computing Center

College of Engineering, Seoul National University (SNU)

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RESEARCH INTEREST

GIScience, Machine Learning, High Performance Computing, Active Remote Sensing, Spatial Data Analysis

EDUCATION

Seoul National University, Seoul, South Korea

M.A. in Geography   Sep 2021 – Feb 2024

- Master's Thesis: "Real-time Landslide Susceptibility Monitoring Using Spatio-temporal High-resolution Active Remote Sensing Data: An Interpretable Machine Learning Approach"
- Adviser: Dr. Gunhak Lee

Kongju National University, South Chungcheong Province, South Korea

B.A. in Geography and B.Sc. in Atmospheric Science   Mar 2015 – Aug 2021

- Cumulative GPA: 3.81 / 4.50

PUBLICATIONS

[3] **Yonghun Suh** & Gunhak Lee (2024), Predicting Landslide Susceptibility Using High-resolution Active Remote Sensing Data: An Interpretable Machine Learning Approach, *Journal of the Korean Cartographic Association* , 24(2), 89-111. (in Korean)

[2] Eun-Hye Yoo, John E. Roberts, & **Yonghun Suh** (2024), Delayed effects of air pollution on public bike-sharing system use in Seoul, South Korea: A time series analysis, *Social Science & Medicine* , 352. (in English)

[1] **Yonghun Suh** & Gunhak Lee (2023), Estimation of the de Facto Population at the Building Scale Using a Dasymetric Mapping Method Based on GWR, *Journal of the Korean Cartographic Association* , 23(1), 21-34. (in Korean)

CONFERENCE PRESENTATION

[7] **Yonghun Suh** & Gunhak Lee, Real-time Landslide Susceptibility Monitoring Using Spatio-temporal High-resolution Active Remote Sensing Data: An Interpretable Machine Learning Approach, *2024 Annual Conference of the Korean Geographical Society*, Seoul, South Korea, Jun. 27–28, 2024. (in Korean)

[6] Eun-Hye Yoo, John E. Roberts, & **Yonghun Suh**, Delayed effects of air pollution on public bike-sharing system use in Seoul, South Korea: A time series analysis, *2024 Spring Conference of Korean Society of Environmental Health*, Gangwon Province, South Korea, May. 29–31, 2024. (in English)

[5] **Yonghun Suh** & Gunhak Lee, An alternative approach for the landslide prediction using an interpretable machine learning method, *2023 American Association of Geographers Annual Meeting (AAG)*, Denver, USA, Mar. 23–27, 2023. (in English)

[4] **Yonghun Suh**, Seong-Yun Bae & Song-Hee Jeong, Accessibility Analysis of Public Cooling Shelters in Seoul Considering Local Temperature: Focusing on the Elderly Population, *2022 Annual Conference of the Korean Geographical Society*, Seoul, South Korea, Jun. 24-25, 2022. (Poster, in Korean)

[3] **Yonghun Suh** & Gunhak Lee, Estimation of the de Facto Population at the Building Scale Using a Dasymetric Mapping Method Based on GWR, *2022 The Korean Cartographic Association Spring Conference*, Seoul, South Korea, Jun. 11, 2022. (in Korean)

[2] **Yonghun Suh** & Gunhak Lee, Estimation of building-scale population density by using a dasymetric-based interpolation method: A case study of Seoul metropolitan area, *2022 American Association of Geographers Annual Meeting (AAG)*, Virtual, Feb. 25 – Mar. 1, 2022. (in English)

[1] Soojeong Myeong & **Yonghun Suh**, Pre-flood and post-flood damage analysis in the Imjin River Basin, *2020 Korean Society of Remote Sensing Fall Conference*, Virtual, Nov. 4 – 6, 2020. (Poster, in Korean)

RESEARCH EXPERIENCE

UB Clean Air, University at Buffalo, the State University of New York (SUNY), NY, United States

Project Consultant — Sep 2024 – Present

A community-based air quality research project funded by the Environmental Protection Agency

- **Role**: Contribute to the developing data collection strategies.
- PI: Prof. Eunhye Yoo (SUNY)

Brain Korea Research Team for the Future Landscape, Seoul National University (SNU), Seoul, South Korea

Graduate Student Researcher — Sep 2021 – Aug 2023

A research team focused on fostering next-generation strategic spatial experts

- **Role**: Conducted research on de-facto population and landslide susceptibility
- Conducted research on landslide susceptibility utilizing interferometric SAR and machine learning
- Conducted research on de-facto population utilizing fine-scale population data of Seoul

Development of the Method for Detecting Spatial Interactive Flow Clusters and Its Applicability, SNU, Seoul, South Korea

Graduate Student Researcher — Aug 2021 – Jun 2021

A research project for developing scientific analysis methods to detect the pattern of complex spatial interactions

- **Role**: Conducted literature review on spatial, network, and vector autocorrelation to analyze spatial autocorrelation in spatial interaction data systematically.
- PI: Prof. Gunhak Lee (SNU)

Korea Environment Institute (KEI), Sejong Self-Governing City, Korea

Research Intern — Sep 2020 – Dec 2020

A research internship opportunity for undergraduate students

- **Role**: Conducted Sentinel-2 data processing and climate analysis to support research projects on the North Korean environment
- Assisted Dr. Soojeong Myeong, a Chief Research Fellow, Water and Land Research Group, KEI

WORK EXPERIENCE

Office of Information & Computing Center, College of Engineering (CoE), SNU, Seoul, South Korea

System Administrator — Jul 2024 – Present

- **Role**: Manage 2 GPU clusters with multiple nodes (A100 - 4 nodes, GTX1080 - 100 nodes) for computation demand of 5,000+ users in CoE, SNU
- Supported "2024 SNU Fast MRI Challenge" as a role of MLOps

Journal of the Korea Cartographic Association, Seoul, South Korea

Editorial Assistant — Jan 2022 – Dec 2022

- **Role**: Managed submissions, reviews, and proofreading processes.
- Contributed to the editorial activities for three volumes of the journal.

The Third Topography Analysis Team, Third Republic of Korea Army, Gyeonggi Province, Korea

Imagery Analysis Specialist — Aug 2017 – Apr 2019

- **Role**: Provided crucial terrain information to assist commanders in decision-making
- Conducted topographical analysis & provided information through paper and digital maps using ArcGIS and TerraExplorer.

TEACHING EXPERIENCE

Spatial Analytics 3: Spatio-temporal Data Science, SNU, Seoul, South Korea

Teaching Assistant   Spring 2023

- Provided the entire lab session material using R Markdown and GitHub actions
- Instructor: Prof. Key-Ho Park (SNU)

Spatial Analytics 2: Machine Learning, SNU, Seoul, South Korea

Teaching Assistant   Fall 2022

- Conducted TA lab sessions on machine learning algorithms using R
- Instructor: Prof. Key-Ho Park (SNU)

Computer Cartography, SNU, Seoul, South Korea

Teaching Assistant   Fall 2021

- Conducted TA lab sessions on cartography & spatial analytics using ArcGIS and R
- Instructor: Prof. Gunhak Lee (SNU)

OTHER EXPERIENCE

Bacchus – System Administrator Club, Dept. of Computer Science and Engineering, SNU, Seoul, Korea

Club Member   Mar 2024 – Present

- Engaged in environment setup for managing Debian package caching servers using Caddy (webserver) and Reprepro (Debian package repository manager) in a Kubernetes (container orchestration tool) setup.
- Migrated the club's manual webpage from Cloudflares hosting service to the on-premise server

2024 Accelerator Programming Winter School, SNU, Gyeonggi Province, South Korea

Participant   Feb 2024

- An intensive course covering CUDA programming.
- Conducted a team project optimizing the inference performance of the GRU model by porting CPU code to GPU kernels.

Server Management, Dept. of Geography, SNU, Seoul, Korea

System Administrator   Nov 2022 – Feb 2024

- Set up a Windows HPC server that includes WSL to help more students utilize the resource.

AWARDS & SCHOLARSHIPS

- Future Vision Scholarship, SNU   Feb 2023
  - Received the Scholarship from SNU for outstanding academic performance and exemplary conduct.

- Best Poster Award in Student Poster Competition, Korean Geographical Society (KGS)   Jun 2022
  - 2022 Annual Conference of the KGS

- Outstanding Service Award, SNU   Feb 2022
  - Awarded by the Brain Korea Research Team for the Future Landscape at SNU for significant contributions to the department.

- Talent Development Scholarship, Jeju International Scholarship Foundation (JISF)   May 2016
  - Awarded by JISF for outstanding academic performance

- The Kongju National University Alumni Association Scholarship   Nov 2015

SERVICES

Graduate Student Council, Dept. of Geography, SNU, Seoul, Korea

Treasurer of the Council   Sep 2022 – Aug 2023

- Coordinated departmental events and managed a graduate field trip

Republic of Korea Army, Korea

Enlisted Military Service for the Republic of Korea   Jul 2017 – Apr 2019

SKILLS

- Programming Languages
  - **R** (reticulate, JuliaCall, Rcpp), **Python**, **Fortran**, **Julia**, **C++**, **CUDA**, **bash**

- GIS Software: ArcGIS Variant, QGIS
- Remote Sensing Software/Platform: Erdas Imagine, Google Earth Engine (via rgee), HyP3 (ASF)
- Others
  - Kubernetes (container orchestration platform) environment experience
  - GNU/Linux (Debian variant) including Windows Subsystem for Linux (WSL)
  - Experience in installing, configuring, maintaining, and monitoring Server
  - Ansible, Git, Metal as a Service(MaaS) Latex, Quarto

[*Updated on Sep. 2024*]