

Kim Yeonjun

AGOL R&D Lab Team Lead @ Esri | Geo-AI Expert | Data Science & Generative AI Instructor

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GeoAI Specialist bridging research and practice by building reproducible spatial analytics pipelines and decision-support systems for urban, mobility, disaster, and tourism applications. Experienced in large-scale data analysis and machine learning modeling built on Python, SQL, and GIS, including analysis of 100GB-scale service logs, processing of 50 million spatial records, and development of a time-series anomaly detection model for a manufacturing process. Has also trained 500+ learners across K-Digital Training and corporate, university, and public institution programs, delivering practical AI application training and Python/SQL/Tableau/GIS-based data analysis education and project mentoring.

Skill Stack:

Python, SQL (PostgreSQL/PostGIS), Geospatial Analysis (QGIS, ArcGIS), Geo-AI
Machine Learning (Scikit-learn, Isolation Forest, Deep Learning), Networking Analysis (pgRouting, A*)
Time-Series Forecasting (ARIMA, SARIMA, Prophet, LSTM), Spatial Statistics (GWR, MGWR, K-means, Kaplan-Meier)
Data Visualization (Tableau, Streamlit)

AI Stack:

Claude & Claude Cowork, Gemini & Gems, Open AI (ChatGPT), Perplexity
Image (Midjourney, Nano Banana, Adobe Firefly, Stable Diffusion)

Collaboration Tools: Slack, Jira, MS 365, Google Workspace, MS Copilot

GitHub: <https://github.com/yeonjun7724>

Portfolio: <https://yeonjun.wiki/>

01 Experience

Esri Korea

Jul 2026 – Present (2 mo) | Full-time | AGOL R&D Lab Team Lead, Geo-Spatial Data Scientist

ArcGIS Online / Living Atlas Korea Content Strategy & GeoAI R&D

[Key Responsibilities]

- Lead ArcGIS Online and Living Atlas Korea content work while planning and prototyping GeoAI and Spatial AI R&D initiatives.
- Design geospatial usage scenarios tailored to the domestic user environment and collaborate with global partners and internal teams on technology and content.

[Tech Stack] ArcGIS Online, Living Atlas, GeoAI, Spatial AI

THE CORE Co., Ltd.

May 2025 – Jul 2026 (1 yr 3 mo) | Full-time | AI Engineer & Data Scientist / GIS Expert

AI-Based Anomaly Detection Model for a Heat-Treatment Manufacturing Process

Mar 2026 – Mar 2026 | AI Engineer & Data Scientist

[Key Achievement] *Built an AI-based anomaly detection model using time-series sensor data from the heat-treatment process, achieving a detection Precision of 0.82 and improving the detection rate by 20%+ over the existing rule-based approach.*

[Key Responsibilities]

- Preprocessed and validated the quality of ~550,000 process sensor records (temperature, pressure, time, etc.).
- Built the machine-learning training dataset and performed feature engineering on process data.
- Built an unsupervised anomaly detection model based on Isolation Forest to detect process anomaly patterns.
- Designed an LSTM Autoencoder-based time-series anomaly detection model to detect process anomalies over time.
- Improved model stability and detection accuracy by building a normal-process baseline dataset.

[Tech Stack] Python, Pandas, Scikit-learn, TensorFlow / PyTorch, Isolation Forest, LSTM Autoencoder

GIS-Based Tourism Analysis Supporting Songpa-gu New Tourism Special Zone Designation

Oct 2025 – Nov 2025 | GIS Expert

[Key Achievement] *Carried out the Songpa-gu new tourism special zone designation service; supported prioritization and strategy for zone expansion through GIS analysis covering 1,281 tourism facilities and 540,000 foreign visitors.*

[Key Responsibilities]

- Built a spatial database of tourists, tourism facilities, and lodging facilities and performed GIS analysis.
- Quantitatively evaluated 3 candidate zones for the tourism special zone (Songridan-gil, Bangi Market, Punhnaptoseong).
- Analyzed tourist inflow, transit accessibility, and land-use suitability to derive expansion priorities.

[Tech Stack] QGIS, PostGIS, Python, GeoPandas, Spatial Statistics, Tourism Data Analysis

Tourism Resource & Accessibility Analysis for Jinan County

GIS Expert

[Key Responsibilities]

- Conducted GIS-based spatial analysis of tourism resources and accessibility to identify potential tourism development areas in Jinan County.

[Tech Stack] QGIS, PostGIS, Python, GeoPandas

Generative AI Course, Dept. of Green Smart City, Sangmyung University (Cheonan Campus)

Sep 2025 – Dec 2025 | Instructor

[Key Responsibilities]

- Taught Python/SQL/GIS-based data analysis and visualization hands-on, covering data collection, preprocessing, analysis, and dashboard building.
- Delivered generative AI and prompt engineering training using Midjourney and Stable Diffusion (30 students).

Team Sparta

Jan 2025 – Jul 2026 (1 yr 7 mo) | Freelance | Tutor in Data Analysis and Science & AI

Corporate AI Applied-Practice Training & Consulting Instructor

Mar 2026 – Jun 2026 | AI Expert

[Key Achievement] *Delivered generative AI training (MS Copilot, ChatGPT, Claude, Gemini) and AI PBL projects, training 300+ practitioners at major organizations including Samsung Electronics, LG Group affiliates, Lotte Department Store, and ETRI, improving their AI application capability.*

[Key Responsibilities]

- LG Energy Solution — MS Copilot scenario workshop / agent development training.
- LG Uplus — MS Copilot scenario workshop for team leads and members.
- Sunjin — Global VIL AI applied-practice training (for expatriate staff).
- Samsung Electronics DS — Advanced Claude Cowork training.
- ETRI (Electronics and Telecommunications Research Institute) — AI application training for management-support staff.
- SeAH Holdings — AI PBL (Problem-Based Learning) training for managers.
- LG H&H — AX (AI transformation) training for department/division heads.
- Samsung Electronics MX Division — AI-assisted proposal-writing training.
- Lotte Department Store — AI PBL (Problem-Based Learning) course.

[Tech Stack] Python, Pandas, Streamlit, Vercel, Railway, MS Copilot, Google Workspace (+Gemini), Claude & Claude Cowork, Open AI (ChatGPT), Perplexity

Tutor — Python, ML/DL, SQL, and GIS Data Analysis

Jan 2025 – Mar 2026 | Tutor in Data Analysis and Science

[Key Achievement] *Delivered Python/SQL/Tableau-based data analysis training and project mentoring, teaching 200+ learners in total and mentoring 50+ data analysis projects.*

[Key Responsibilities]

- Guided data analysis projects through hands-on Python(Pandas)/SQL data preprocessing and EDA training.
- Taught spatial-data-analysis workflow building through hands-on Python/QGIS training.
- Delivered training on data analysis and modeling grounded in basic statistics and machine learning algorithms.
- Delivered time-series analysis and modeling training using ARIMA, SARIMA, Prophet, and LSTM.
- Mentored projects through data-analysis project design and code-review-based mentoring.
- Improved learners' problem-solving and applied skills through project result presentations and feedback.

[Tech Stack] Python, Pandas, SQL (MySQL, PostgreSQL), Scikit-learn, Tableau, QGIS

GBike Co., Ltd.

Nov 2024 – Jan 2025 (3 mo) | Contract | Marketing Data Analyst / GIS Expert

Usage-Pattern Analysis and Marketing-Strategy Support Based on Shared-Mobility Service Data

Nov 2024 – Jan 2025

[Key Achievement] *Analyzed usage-log data from 200 million shared-mobility service rides to identify core demand areas and support data-driven marketing strategy.*

[Key Responsibilities]

- Preprocessed and validated ~100GB of service usage log data using Python and SQL.
- Analyzed usage patterns by region and time slot to characterize service demand and usage trends.
- Identified core demand areas based on usage patterns and supported data-driven marketing strategy.
- Designed 5 core operational KPIs and built an operations-data monitoring framework.
- Built 3 Tableau dashboards for service-usage analysis and marketing decision support.

[Tech Stack] Python, Pandas, SQL (MySQL), Tableau

Mango System Co., Ltd.

Oct 2022 – Sep 2024 (2 yrs) | Full-time | Data Engineer / GIS Expert

Operation of the 'Pinogio' SaaS Geospatial-Analysis Platform Geocoding System & Spatial Data Processing

[Key Achievement] *Processed 50 million spatial records on PostgreSQL/PostGIS and improved geocoding data quality, raising service accuracy by ~2%.*

[Key Responsibilities]

- Managed and supported geospatial data operations for the geocoding system based on the road-name address DB and continuous cadastral map data.
- Performed monthly updates and data-consistency validation of the Ministry of the Interior and Safety road-name navigation DB and VWorld continuous cadastral map data.
- Managed 50 million parcel-level spatial records on PostgreSQL/PostGIS and processed large-scale data via spatial queries.
- Improved geocoding data accuracy through spatial data quality management and processing pipeline improvements.

[Tech Stack] Python, PostgreSQL, PostGIS, QGIS

Research on a Platform for Selecting Target Areas for Resident Health-Impact Surveys in Traffic-Dense Zones (Seokyeong University)

May 2023 – Jul 2023

[Key Achievement] *Built a target-area selection model and spatial analysis dataset for resident health-impact surveys based on traffic conditions, using spatial analysis of nationwide road-network and traffic-volume data.*

[Key Responsibilities]

- Collected and preprocessed nationwide road-network and traffic-volume data to build a spatial analysis dataset.
- Managed nationwide road-network spatial data on PostgreSQL/PostGIS and performed spatial analysis via spatial queries.
- Designed the target-area analysis model for the health-impact survey using 3 traffic-condition indicators (traffic volume, etc.).
- Mapped analysis results and produced policy-usable data through QGIS-based spatial analysis and visualization.

[Tech Stack] Python, PostgreSQL, PostGIS, QGIS

Defense Digital-Twin Technology Development Phase 2 for Terrain Information Analysis (Defense Acquisition Program Administration)

Jan 2023 – Apr 2024

[Key Achievement] *Built a spatial dataset and 25 spatial layers for 2D/3D digital-twin analysis using satellite-imagery-based terrain data.*

[Key Responsibilities]

- Carried out a 2D/3D digital-twin spatial-data-building project for defense terrain information analysis.
- Designed and built an alternative spatial database for analysis in a secure environment with restricted access to external data.
- Preprocessed and processed 3 types of satellite-imagery-based raster data (DEM-derived data).
- Processed spatial data in QGIS and built 25 spatial data layers for digital-twin analysis.

[Tech Stack] Python, QGIS, GeoServer, Raster Data Processing

Sogang University Industry-Academic Cooperation Foundation

Apr 2022 – Sep 2022 (6 mo) | Contract | Data Engineer

Academic Research Data Management System

[Key Achievement] *Designed and built a PostgreSQL-based research database for academic research data management and analysis.*

[Key Responsibilities]

- Designed the research-data storage structure and table schema through research-data collection and preprocessing.
- Built a PostgreSQL-based research database and data-management environment.
- Wrote SQL-based data management and analysis queries for data retrieval and analysis.

[Tech Stack] PostgreSQL, SQL, Data Modeling

Geospatial Information Instructor

Oct 2022 – Jun 2026 (3 yrs 9 mo) | Freelance | GIS Expert and Educator

Open-Source Spatial Big Data Analysis & Visualization Training

Oct 2022 – Mar 2026 | GIS Expert and Educator

[Key Responsibilities]

- Operated spatial big-data processing and analysis training programs using QGIS, Python (GeoPandas), and SQL (PostgreSQL/PostGIS).
- Delivered hands-on training on Python GIS-based data preprocessing and analysis, including spatial joins and spatial queries.
- Guided hands-on projects on QGIS/Python-based spatial-data-analysis workflows and data visualization.
- Guided hands-on PGIS-based participatory geospatial data building and local-issue analysis projects.
- Taught spatial big-data analysis at universities including Seoul National University, Dongguk University, Sangmyung University, Namseoul University, and Catholic Kwandong University.
- Delivered spatial big-data analysis training at public institutions including the Ministry of Foreign Affairs, KARI (Korea Aerospace Research Institute), and the LX Spatial Information Academy.

[Tech Stack] Python, Pandas, GeoPandas, QGIS, PostgreSQL, PostGIS, SQL, Tableau, ML/DL, PGIS (Participatory GIS)

02 Education

Dongguk University Graduate School

M.A. in Transportation Geography | 2024.03 – 2026.08

- Research areas: Spatial Data Analysis, Spatial Statistics, Geo-AI.
- Primary focus: Regional analysis based on spatial statistics and GeoAI-based spatial data analysis.
- KCI paper: Extracting Workation-Feasible Areas in Gangwon Special Self-Governing Province Using Spatial Statistics (2024).
- KCI paper: Impact of High-Speed Rail Opening on Station-Area Development — Focusing on the SRT Suseo–Mokpo Line (2026).
- KCI paper: A Comparative Study of Time-Series Forecasting Models on Land Price Changes in Municipal Districts Containing GTX-A Stations (2026).

Sejong University

B.Eng. in Geo-Information Engineering / B.A. in History | 2012.03 – 2020.08

- Research areas: Geo-Information Engineering (GIS), Remote Sensing.
- Primary focus: Spatial Data Analysis and GIS-based spatial data processing/analysis.

03 Skills

Data Analysis, Python, Machine Learning (Isolation Forest, LSTM, ARIMA/SARIMA/Prophet), Deep Learning, Spatial Statistics (GWR/MGWR, K-means, Kaplan-Meier), GIS, Tableau, PostgreSQL, MySQL

04 Awards / Certifications / Other

[Community] Leader, 'GeoNetwork' (20s–40s Geospatial Community)

Jul 2025 | Other

- Ran an 90-member nationwide community for technical exchange and networking among geospatial/GIS professionals and students in their 20s–40s.

[Paper] Impact of High-Speed Rail Opening on Station-Area Development: Focusing on the SRT Suseo–Mokpo Line — Journal of Korea Planning Association (Mar 2026)

Mar 2026 | Other

- Analyzed changes in regional development patterns after the transit-infrastructure opening for station-area zones along the SRT Suseo–Mokpo line.
- Built and preprocessed a spatial dataset from regional development indicators (population, businesses, land use, etc.).
- Classified station areas into 4 clusters (growth-type, stagnant-type, etc.) using K-means clustering.
- Statistically analyzed differences in development sustainability and growth patterns across station-area types using Kaplan–Meier survival analysis.
- Quantitatively analyzed the data-driven impact of transit-infrastructure expansion on regional economies and spatial structure.

[Tech Stack] Python, Pandas, GeoPandas, Scikit-learn, Spatial Statistics, GIS

[Paper] A Comparative Study of Time-Series Forecasting Models on Land Price Changes in Municipal Districts Containing GTX-A Stations — Journal of the Economic Geographical Society of Korea 29(2), pp.264-281 (2026)

2026 | Other

- Collected and preprocessed roughly 171,678 real apartment-transaction records spanning 240 months (Jan 2005–Dec 2024) for municipal districts containing GTX-A stations.
- Built four time-series forecasting models (ARIMA, SARIMA, Prophet, LSTM) and compared their predictive performance using RMSE, MAE and MAPE.

- Quantified how transit-infrastructure investment shapes local land-market impact and how explanatory power differs across models.
- Validated the relationship between transport investment and differentiated property-price change with data.

[Tech Stack] Python, Pandas, ARIMA, SARIMA, Prophet, LSTM, Scikit-learn

[Paper] Extracting Workation-Feasible Areas in Gangwon Special Self-Governing Province Using Spatial Statistics — Journal of the Korean Society of Surveying (Dec 2024)

Dec 2024 | Other

- Built an entropy-weighted workation-suitability index for Gangwon municipalities using multidimensional variables (tourism, living infrastructure, accessibility, etc.).
- Derived spatial clustering patterns of high-potential and vulnerable areas via Local Moran's I spatial autocorrelation analysis.
- Performed MGWR-based spatial statistical modeling to analyze the regional influence and spatial heterogeneity of key location factors.
- Identified workation-feasible areas in Gangwon and recommended customized workation themes based on regional characteristics.

[Tech Stack] Python, GeoPandas, MGWR, QGIS

[Training] Geospatial Application Software Specialist Program, Completed — LX (Korea Land and Geospatial Informatix Corporation) (Jun–Nov 2019)

Nov 2019 | Other

- Completed training in geospatial data processing and GIS application software development.
- Learned the fundamentals of GIS application development with Java and JavaScript.
- Practiced building spatial databases and using spatial queries with PostgreSQL/PostGIS.
- Performed spatial data analysis and visualization using QGIS and ArcGIS.

[Tech Stack] QGIS, ArcGIS, PostgreSQL, PostGIS, Java, JavaScript

[Competition] 2025 Agri-Food Public Data Startup Contest — Livestock Products Quality Evaluation Service Commissioner Award (Ministry of Agriculture, Food and Rural Affairs, Aug 2025)

Aug 2025 | Other

- Developed a route-optimization web-service prototype for slaughterhouse-bound livestock transport vehicles to support eco-friendly livestock logistics.
- Implemented route search and optimization algorithms for slaughterhouse access routes using the Mapbox API.
- Developed the Python-based spatial data pipeline and a Streamlit web application.
- Proposed ideas for livestock-logistics efficiency and carbon-emission reduction using public data.

[Tech Stack] Python, Mapbox API, Streamlit, Route Optimization

[Competition] 2025 High-Precision Digital Map Data Innovation Contest — Korean Society of Surveying, Geodesy, Photogrammetry and Cartography President Award (Aug 2025)

Aug 2025 | Other

- Developed a pedestrian route-optimization service for apartment complexes using high-precision digital map data from the National Geographic Information Institute.
- Implemented a centerline (skeleton) extraction algorithm using Vector Medial Axis Transformation (MAT) on building polygon data.
- Implemented a prototype service with in-complex route search and visualization using the Mapbox API.
- Developed the Python-based spatial data pipeline and a Streamlit-based web visualization interface.

[Tech Stack] Python, Skeleton (MAT), Mapbox API, Streamlit, Spatial Data Processing

[Competition] 2025 COMPAS Data Analysis Contest — Grand Prize (LH / Seoul National University, Mar 2025)

Mar 2025 | Other

- Analyzed population-change patterns by regional characteristics following the opening of a new SRT station.
- Analyzed regional influence factors and spatial heterogeneity using spatial regression (GWR, MGWR).

- Implemented a Pydeck-based 3D spatial visualization and data analysis dashboard.
- Derived analysis results to support spatial-data-driven policy decision making.

[Tech Stack] Python, GeoPandas, GWR, MGWR, Pydeck, Streamlit

[Competition] 2024 Tourism Data Utilization Contest — Excellence Award (Korea Tourism Organization, Nov 2024)

Nov 2024 | Other

- Built a workation-area recommendation system and web service using Gangwon tourism data.
- Collected public data and built a spatial database (PostgreSQL) based on tourism and living-infrastructure data.
- Performed EDA-based tourist-site characterization and spatial data preprocessing/modeling.
- Implemented a web-based data analysis and visualization system on AWS.

[Tech Stack] Python, PostgreSQL, QGIS, Spatial Data Analysis

[Competition] 2024 LH National Land & Urban Data Analysis Challenge — Yeongdeungpo-gu Grand Prize (LH)

Aug 2024 | Other

- Analyzed fire-vulnerable areas and areas with difficult fire-truck access using Yeongdeungpo-gu regional data.
- Built a spatial dataset from public data and performed exploratory data analysis (EDA).
- Analyzed regional risk using spatial autocorrelation and spatial regression techniques.
- Produced spatial data visualizations and analysis results to support urban safety policy.

[Tech Stack] Python, PostgreSQL, QGIS, Tableau, Scikit-learn, Spatial Statistics

[Competitions] Additional Awards

2023 – 2025 | Other

- 2025 Forestry Big Data & AI Startup Contest — Korea Forest Welfare Institute President Award.
- 2024 Tourism Data Utilization Contest — Excellence Award.
- 2024 Chuncheon Big Data Contest — Chuncheon Mayor Award.
- 2024 Yeongju Big Data Contest — Grand Excellence Award.
- 2024 Anyang Public & Big Data Utilization Contest — Anyang Mayor Award.
- 2023 Jeju Satellite Data Utilization Contest — Encouragement Award.
- 2023 LH National Land & Urban Data Analysis Challenge — LH President Award.
- 2023 Culture & Tourism Data Analysis Contest — Grand Excellence Award.

05 Languages

English — Business Level (OPIc IM2, Mar 09, 2026)