

Vol 2.

## The People & Partnerships Driving the Bid



### The Korean Society of Surveying, Geodesy, Photogrammetry and Cartography (KSGPC)

Submits Its Official Bid Book for ISPRS Congress 2030!

This marks just the beginning.

Backed by a broad and well-connected geospatial community across academia, industry, and the public sector, Korea’s bid is powered by collective expertise and collaboration.

In this newsletter, we begin by introducing KSGPC at the center of this effort, followed by the people and partners driving this journey forward—and shaping the future of geospatial science together.

Guided by our vision, “**Connecting the World through Spatial Insights**”, this journey reflects our commitment to advancing global collaboration and innovation through geospatial science.



### THE KOREAN SOCIETY OF SURVEYING, GEODESY, PHOTOGRAMMETRY AND CARTOGRAPHY (KSGPC)

As the premier professional authority for geospatial engineering in Korea, the Korea Society of Surveying, Geodesy, Photogrammetry and Cartography (KSGPC) is proud to lead the bid for the XXVI ISPRS Congress. Established in 1981, KSGPC has long served as a prestigious national organization, advancing excellence across surveying, geodesy, photogrammetry, remote sensing, cartography, and spatial information sciences.

Today, as the ISPRS Ordinary Member representing the Republic of Korea, KSGPC plays a pivotal role in connecting Korea’s expertise with the global geospatial community. Built upon strong and enduring partnerships across academia, government, and industry, we foster a collaborative ecosystem that drives innovation beyond borders.

More than an organizing body, KSGPC is a committed partner dedicated to delivering a scientifically rigorous and seamlessly executed Congress—one that will contribute meaningfully to the future of geospatial science and technology.

This bid is supported by a strong and expanding network across Korea’s geospatial community, bringing together academic societies, government institutions, research organizations, industry leaders, and emerging scholars. Together, they form the foundation of a collaborative ecosystem driving this bid forward. In the following pages, we introduce the organizations, institutions, and individuals shaping this journey.

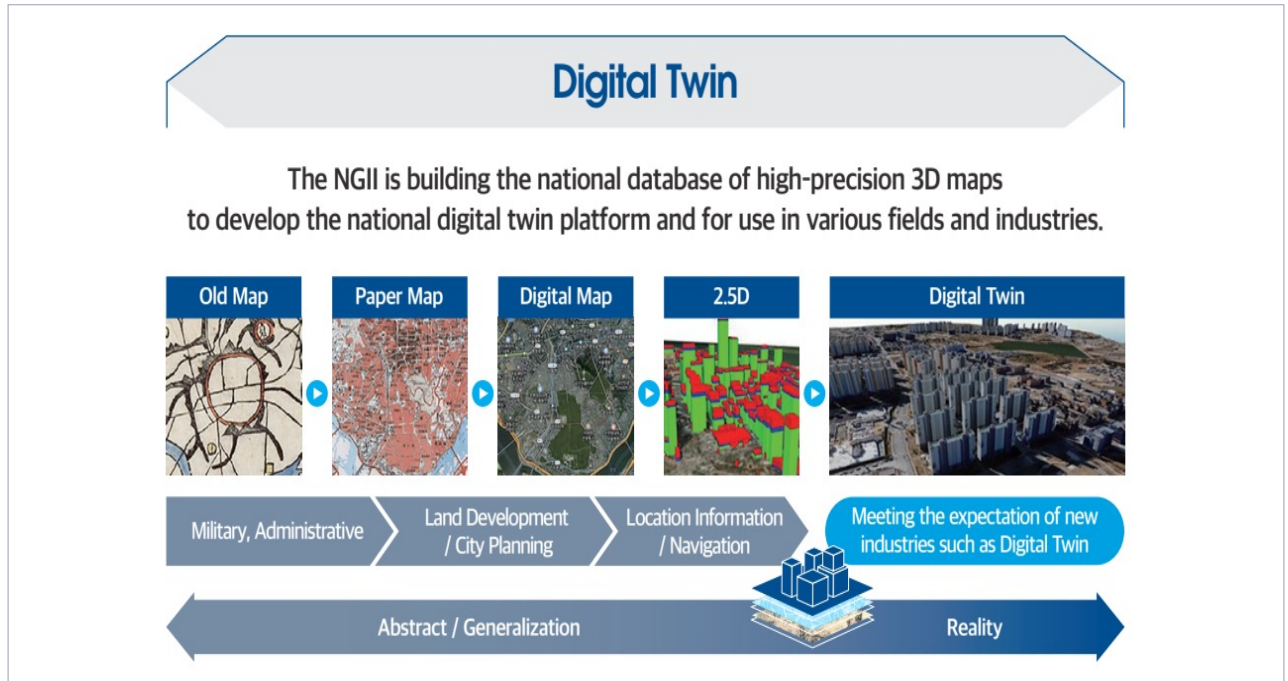
In Partnership with Korea’s Leading Geospatial Societies





## NATIONAL GEOGRAPHIC INFORMATION INSTITUTE (NGII)

The National Geographic Information Institute (NGII) is Korea's national authority for mapping and geospatial information under the Ministry of Land, Infrastructure and Transport. NGII establishes and manages the national geodetic reference framework, produces national base maps, and provides authoritative geospatial information to support sustainable national development.



By delivering accurate and reliable geospatial data, NGII supports policymaking, land administration, infrastructure planning, environmental management, and disaster response. Through advanced technologies such as satellite imagery, aerial LiDAR, and unmanned aerial vehicles, NGII also develops high-precision geospatial information for smart cities, digital twins, and autonomous mobility.

NGII remains committed to data sharing, innovation, and international cooperation as a trusted partner in the global geospatial community.





## KOREA OCEAN SATELLITE CENTER OF THE KOREA INSTITUTE OF OCEAN SCIENCE AND TECHNOLOGY (KIOST)

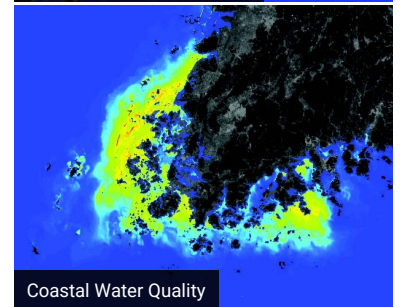
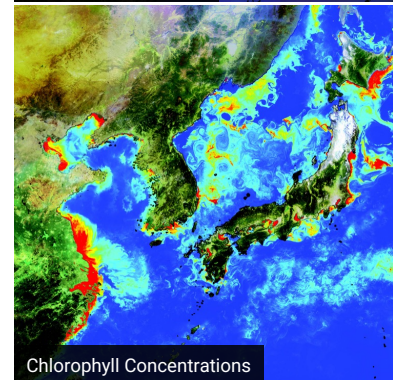
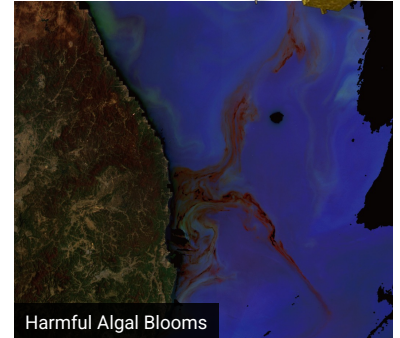
KIOST focuses on the development, operation, and scientific utilization of ocean observation satellites, particularly in the field of **ocean color remote sensing**. Our goal is to better understand marine environments and support sustainable ocean management through satellite observations.

In 2010, we successfully launched the **Geostationary Ocean Color Imager (GOCI)**, which was the world's first geostationary satellite sensor dedicated to ocean color observation. This satellite enabled **hourly monitoring of ocean environments** over Northeast Asia, opening new opportunities for studying dynamic coastal processes

Following the success of **GOCI**, **GOCI-II** was launched in 2020 with improved spatial resolution and expanded observation capabilities. With these satellites, we can monitor various marine phenomena such as **harmful algal blooms, suspended sediments, chlorophyll concentrations, and coastal water quality**.

Our center conducts a wide range of research using satellite observations, including **marine ecosystem monitoring, ocean biogeochemical processes, coastal environmental changes, and climate-related studies**. Recently, we have also been integrating **artificial intelligence and advanced data analysis techniques** to enhance the value of satellite observations.

Currently, we are preparing the **next generation of geostationary ocean color satellites**, which will allow us to build a **long-term observation record spanning nearly three decades**.





## KOREA INSTITUTE OF CIVIL ENGINEERING AND BUILDING TECHNOLOGY (KICT)

Established in 1983, the Korea Institute of Civil Engineering and Building Technology (KICT) stands as South Korea's only government-funded research institute dedicated to the construction sector. For over 40 years, KICT has been at the forefront of solving national challenges and improving the quality of life through innovative research in land, infrastructure, and construction technology.

### Innovating with Spatial Information & Satellite Technology

In response to the increasing challenges of maintaining aging infrastructure and managing the impacts of climate change, KICT is pioneering the application of advanced spatial information technologies. Our researchers are actively integrating remote sensing data into practical civil engineering solutions.

#### ✔ Key Research Areas in Remote Sensing

- **Satellite SAR Monitoring:** Utilization of Synthetic Aperture Radar (SAR) data, including Sentinel satellite imagery, to monitor surface displacement and infrastructure stability with millimeter-level precision.
- **Cost-Effective Maintenance:** Development of algorithms that leverage free or low-cost satellite data to provide wide-area monitoring solutions, reducing maintenance costs by over 30%.
- **Multi-Sensor Integration:** Combining data from satellites, Unmanned Aerial Vehicles (UAVs), and terrestrial 3D laser scanners to create comprehensive digital twins of construction sites and urban environments.
- **AI-Driven Analysis:** Application of artificial intelligence to automate the detection of structural anomalies and environmental changes from vast remote sensing datasets.

Recent achievements include the successful deployment of a satellite-based wide-area survey technology for monitoring waste landfill sites and urban underground structures. This technology enables managers to detect subsidence and other potential hazards remotely, ensuring safety even in difficult-to-access locations.





# GEOSTORY

As South Korea's leading AI spatial intelligence company, **GEOSTORY** is specialized in generating precise location data across land, sea, and air. We deliver highly reliable, operation-ready spatial information that empowers optimal decision-making across various platforms.

We possess a proven track record in Airborne Bathymetric LiDAR (ALB) and high-precision 3D mapping, collaborating with key government ministries (MOLIT, MOF). Furthermore, we are expanding our footprint by partnering with tech giants like NAVER Cloud to provide advanced smart city and digital twin solutions. Spearheading R&D in the surveying and geospatial sector, we have successfully developed '**Seahawk**', South Korea's first airborne bathymetry system in 2020. Recently, by proactively introducing the '**Chiroptera-5**' system with significantly enhanced penetration for the highly turbid waters of the West Coast—we are cost-effectively and precisely constructing seamless coastal 3D spatial data that bridges land and sea.

### Latest ALB System: Chiroptera-5

**Simultaneous and seamless collection over land/water boundary**

- Bathymetric LiDAR
- Topographic LiDAR
- Four-band imaging (R, G, B, NIR)



**Topographic LiDAR**

- 500 KHz

**Bathymetric LiDAR (Shallow)**

- 200 KHz
- Dmax = 32/kl


**Four band Imaging**

- B: 440-520 nm
- G: 500-580 nm
- R: 570-650 nm
- NIR: 780-850 nm

### In-House ALB System: SEAHAWK

**Optimized for a wide variety of market applications and water conditions**

- Maximum survey efficiency and data quality
- Reduced project capture times
- Reduced survey costs

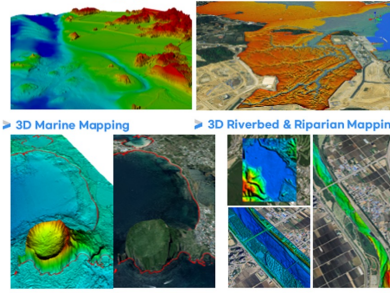


**Operator Station**

**Sensor Head**

### 3D Terrestrial, Marine, Riverbed & Riparian Spatial Data

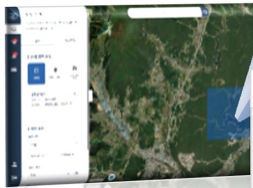
- Seamless 3D Mapping of Land, Tidal Flats, and Shallow Waters
- 3D Marine Mapping
- 3D Riverbed & Riparian Mapping





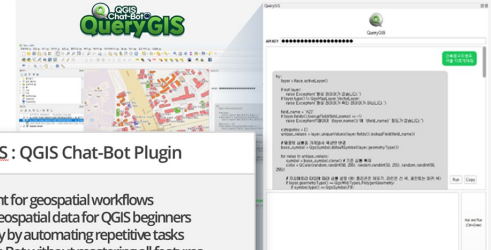
**3DLabs Co., Ltd.** develops advanced geospatial technologies for satellite imagery processing, photogrammetry, and spatial data analysis. Its work focuses on precise satellite image processing and large-scale spatial data utilization, supporting applications such as environmental monitoring, infrastructure management, and digital mapping.

The company also develops technologies for drone-based hyperspectral imagery processing, enabling advanced analysis of surface materials and environmental conditions, as well as solutions for 3D reconstruction and digital twin generation from multi-source imagery. Building on its expertise in remote sensing and geospatial data processing, 3DLabs develops two core platforms: the **Satellite Information Big Data Platform**, which provides integrated management and analysis of large-scale satellite imagery and spatial data, and **QueryGIS**, a geospatial analysis assistant integrated with QGIS that enables spatial analysis through natural language commands, simplifying GIS workflows and improving accessibility to spatial data analysis. Guided by its vision of seamlessly uniting space and Earth, the real and the virtual, and 2D and 3D into a single integrated world, 3DLabs continues to develop technologies that expand the practical use of geospatial information.



#### Satellite Information Big Data Platform

- A one-stop solution that provides satellite data collection, processing, and utilization services, making them easily accessible to general users



#### QueryGIS : QGIS Chat-Bot Plugin

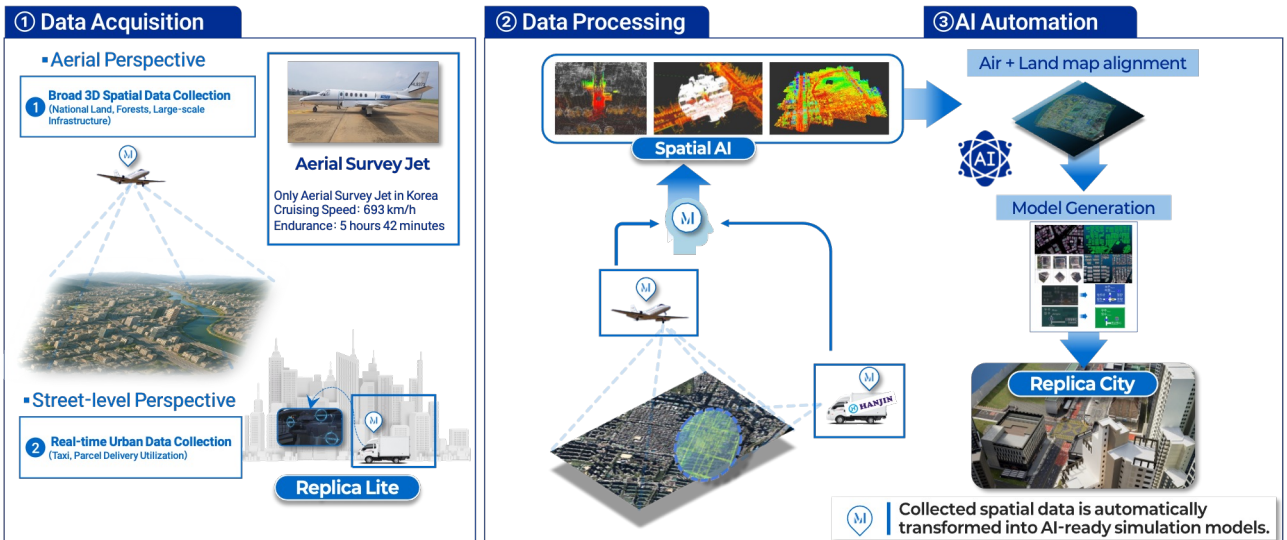
- AI-powered assistant for geospatial workflows
- Easier access to geospatial data for QGIS beginners
- Boosted efficiency by automating repetitive tasks
- Use QGIS via Chat-Bot without mastering all features



**Mobiltech** is an enterprise specializing in the automated construction of high-fidelity digital twins and their application across diverse artificial intelligence industries. Positioned as a core data infrastructure provider for physical AI, the company leverages comprehensive 3D spatial data networks to supply critical datasets for autonomous driving, robotics, and smart cities globally.

The company's research focuses on an end-to-end pipeline encompassing **3D mapping technologies, AI-based data analysis, and automatic object extraction**. By utilizing multi-sensor fusion, Mobiltech automatically transforms raw point cloud data into semantic information. Furthermore, the company develops technologies for the automatic generation of simulation-ready assets, converting real-world properties into virtual environments to minimize the sim-to-real gap for AI validation

Actively engaged in multiple domestic academic societies, Mobiltech is committed to advancing global interoperability of digital twin assets. As the sole Korean General Member of the Alliance for OpenUSD (AOUSD), Mobiltech leads efforts in establishing the OpenUSD standard, contributing to the standardization of digital twins across diverse simulation platforms and markets.



Smart City - Gangnam



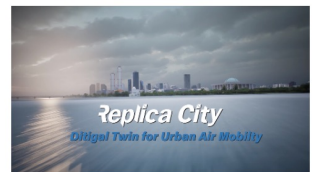
Urban AV Simulation



Sharjah Airport Simulation (UAE)



UAM (Urban Air Mobility) - Yeouido



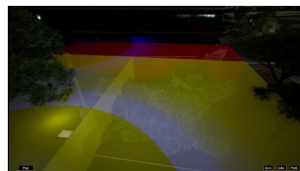
Traffic Monitoring Pangyo Zero City



Traffic Simulation - Yeouido



Security Solution



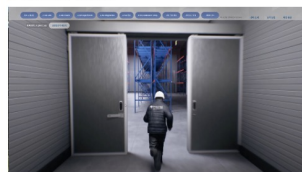
Robot Simulation



Smart Interior Solution (Prop Tech)



Smart Factory



Autonomous Driving - Pangyo



Simulation - Taebaek speedway



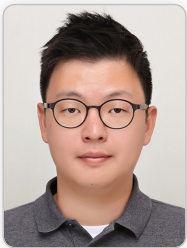
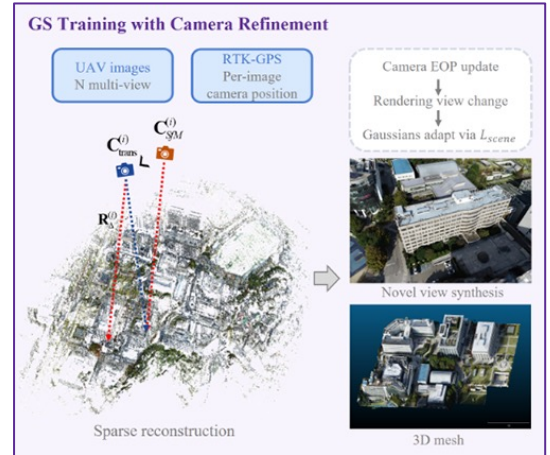


**Cheolhwan Kim** | Ph.D. Candidate, Yonsei University

Cheolhwan Kim is a Ph.D. candidate in the Department of Civil and Environmental Engineering at Yonsei University. His research focuses on 3D urban reconstruction using Gaussian Splatting and UAV imagery. He is currently pursuing his doctoral research on a georeferenced Gaussian Splatting framework that explicitly incorporates absolute spatial constraints into the training process by integrating **RTK-GPS camera positions**.

In this framework, camera poses estimated via structure-from-motion are aligned to a global coordinate frame using RTK-GPS measurements and further refined during Gaussian Splatting training to preserve relative camera-scene geometry.

The proposed approach enables scalable and georeferenced urban reconstruction while maintaining the efficiency of Gaussian-based scene representations, supporting construction-scale applications that require reliable spatial consistency. His long-term research goal is to develop geospatially consistent neural scene representation frameworks for large-scale urban environments, enabling reliable integration between neural reconstruction techniques and real-world spatial information systems.

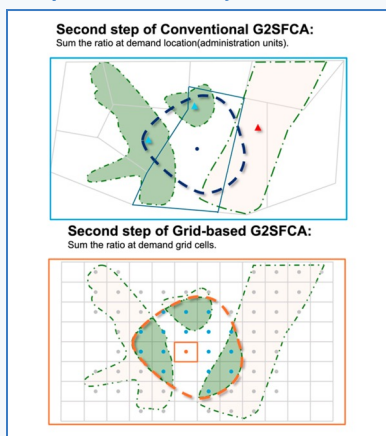


**Jinwoo Park** | Ph.D., Kyung Hee University

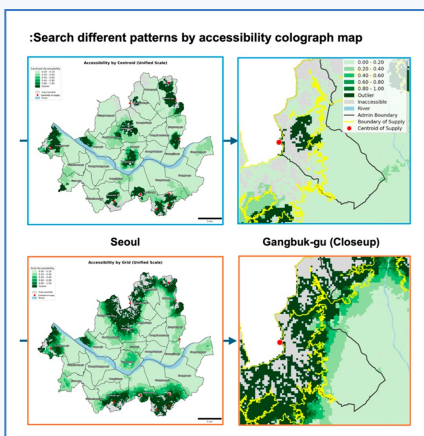
Jinwoo Park, Ph.D., is an Assistant Professor in the Department of Geography at Kyung Hee University, Seoul, Republic of Korea. Dr. Park's research revolves around **Geographic Information Science (GIScience)**, with a strong emphasis on deriving policy implications for sustainable and inclusive urban landscapes through the exploration of spatial and temporal accessibility to urban infrastructure.

His work delves into the intricate relationship between urban environments and the availability of essential resources, shedding light on how the dynamic nature of accessibility impacts various aspects of society. His research harnesses the power of data-rich environments and advanced cyberinfrastructure to capture and analyze the ever-changing phenomena within urban settings. Dr. Park's exploration encompasses diverse topics including human mobility and transportation networks, as he strives to unravel their complexities and uncover insights that inform innovative solutions in Geography, GIScience, and Urban Planning.

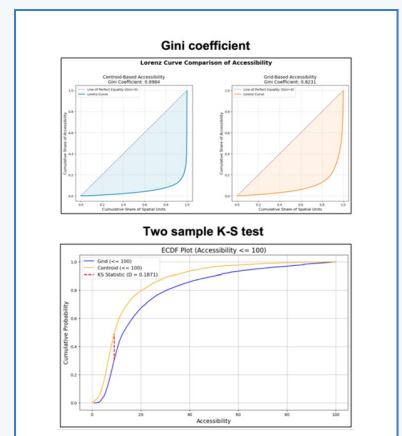
### 1. Spatial Accessibility Measurements



### 2. Comparison



### 3. Validation

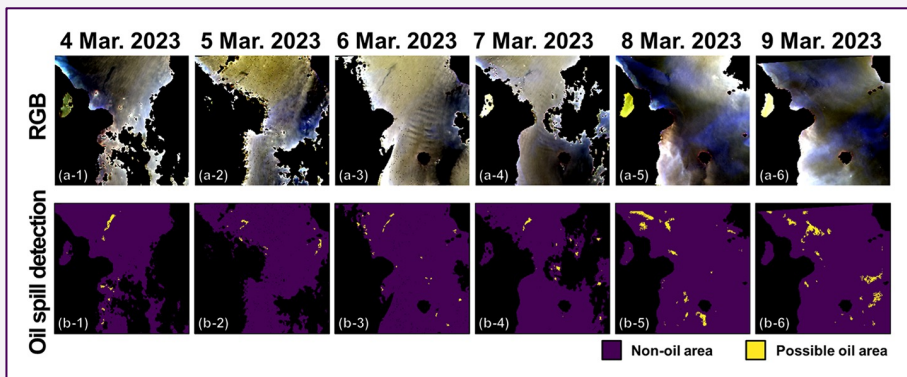




**Won-Kyung Baek** | Remote Sensing Scientist, KIOST

Won-Kyung Baek is a remote sensing scientist at the Korea Ocean Satellite Center, Korea Institute of Ocean Science and Technology (KIOST), Republic of Korea. He received his Ph.D. in Remote Sensing from the University of Seoul in 2022. His research interests include satellite remote sensing, synthetic aperture radar (SAR), SAR-based surface deformation mapping, geospatial artificial intelligence, and multimodal Earth observation. He has also contributed to related studies on AI-based SAR interferogram analysis.

In recent years, he has been primarily engaged in research on marine object detection and geospatial information extraction from satellite data, with particular emphasis on **Ship Detection, Oil Spill Detection, and Tidal-Flat Topography Mapping**. His work seeks to advance practical methodologies for ocean and coastal environmental monitoring.

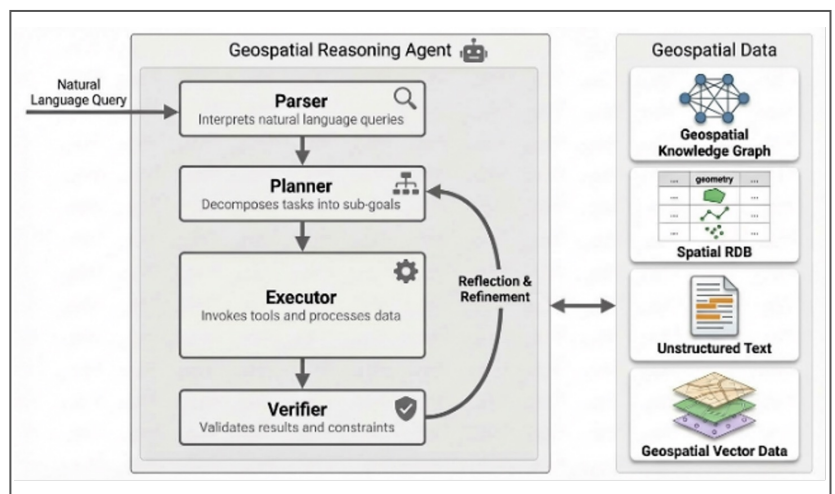


**Jonghyeon Yang** | Ph.D., Assistant Professor in the Department of Geoinformatics at the University of Seoul

Jonghyeon Yang, Ph.D., is an Assistant Professor in the Department of Geoinformatics at the University of Seoul, Seoul, Republic of Korea. Dr. Yang's research has focused on **Geospatial Artificial Intelligence (GeoAI)**, with a strong emphasis on natural language interfaces for geospatial data, especially question answering over geospatial knowledge graphs. His work delves into how large language models can translate natural language questions into formal geospatial queries.

Building on this foundation, his current research extends LLM-based geospatial question answering into agentic systems that reason over diverse geospatial data sources, including spatial relational databases, unstructured text, and geospatial vector data.

Dr. Yang's exploration aims to lower the barrier to leveraging geospatial information, enabling researchers and practitioners to perform complex spatial queries and analyses through natural language alone.



COMING SOON