

# Hyunsu Lee

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Nationality : Korean  
Military : Satisfied

## EDUCATION

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- Undergraduate Student Mar 2020 – Present  
- Bach of Science in Information and Statistics Degree expected August 2026  
- Chungnam National University, Daejeon, Republic of Korea  
- GPA : 3.76/4.5

## RESEARCH EXPERIENCES

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- Undergraduate Research Assistant, Data Science Lab** Feb 2025 – Aug 2025  
- Supported essential data processing tasks, including labeling  
- Studied foundational statistics papers  
- assisted with documentation and clarified research data, contributing to overall lab workflow
- University Administrative AI Document Review Automation, (Generation-type AI Challenge, CNU)** Apr 2025 – Aug 2025  
- Automated student document submission and review with AI chatbot  
- and OCR, Developed integrated web platform with React frontend and Spring Boot backend  
- Implemented end-to-end document processing and feedback system
- Detection of Air Pollution Emission Sources Using Satellite Image, National Information Society Agency (NIA) Data Creator Camp** Jun 2025 – Nov 2025  
- Detected pollution sources using satellite imagery and deep Learning  
- Applied object detection (YOLOv8), height estimation (ResNet), and segmentation (U-Net) on Kompsat-3/3A and Sentinel-2 data  
- Explored potential connections between datasets under ESG themes
- Intern, Korean Astronomy and Space Science Institute (KASI)** Jul 2025 – Aug 2025  
- Transformed raw, multi-source solar wind observation data into modeling-ready datasets through preprocessing and custom workflows.  
- data integration, including input-output synchronization, error handling, and iterative feature engineering for deep learning.  
- Visualized model performance with scatter density plots comparing predicted versus observed ion ratios; analyzed Pearson correlation coefficients to assess accuracy.  
- Compared results from deep learning and regression models; interpreted feature importance, directly connecting scientific insight to prediction improvement.

## RESEARCH INTERESTS

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Main field: Data Science, Statistical Analysis, Artificial Intelligence  
Current focus: Statistical modeling, machine learning, and intelligent computing

## SKILLS

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**Programming languages:** R, Python

## PUBLICATIONS

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1. J.-J. Suh, J.-H. Son, H.-S. Lee, K.-S. Lee, J.-Y. Kim, “Prediction of Heavy Ion Charge State Ratios and Elemental Composition of Solar Wind Using Deep Learning”  
(2025-2026, In preparation)

## PRESENTATIONS

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1. J.-J. Suh, J.-H. Son, H.-S. Lee, K.-S. Lee, J.-Y. Kim, “Prediction of Heavy Ion Charge State Ratios and Elemental Composition of Solar Wind Using Deep Learning”, Korean Space Science Society, Jeju, October 2025

## HONORS AND AWARDS

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- Korea Microsoft Award, (Generation type AI Challenge - Chungnam National University) Sep 2025
- Completion Certificate Awarded, (Data Creator Camp - National Information Society Agency, NIA) Nov 2025

## SUMMARY

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My study in data science was sparked by a fascination with uncovering meaningful insights from complex, imperfect real-world data. During 2025, I gained hands-on experience preprocessing and analyzing diverse datasets—from satellite imagery for air pollution detection to deep learning models applied to space science data. These projects exposed me to the challenges of noisy data, multimodality, and bridging theory with practice.

While I have solid grounding in statistical theory and computational techniques, my experience revealed the ongoing need to improve model interpretability and robustness, especially when working with heterogeneous scientific datasets. This realization motivates me to deepen my knowledge in both AI and statistical methods, focusing on practical, explainable approaches rather than purely algorithmic optimization.

I am eager to contribute to interdisciplinary research environments where data science can be applied thoughtfully to real problems by integrating domain knowledge with advanced analytics. By collaborating with experts and continuing my studies, I aspire to develop solutions that address complex scientific challenges and yield actionable insights.

To Build these foundations, I am committed to fostering a deep understanding of both theoretical frameworks and their practical applications. I seek to cultivate an adaptive mindset that embraces challenges as opportunities for innovation, contributing to research that is not only technically sound but also impactful in diverse domains.