

SEON-HO YOO

Dept. of Industrial & Management Engineering, Korea University ◇ Seoul, Republic of Korea

leoyoo2004@korea.ac.kr ◇ github.com/SeonHoYoo ◇ linkedin.com/in/seonhoyoo ◇ seonhoyoo.github.io

EDUCATION

Korea University

Mar. 2023 – Present

B.S. in Industrial & Management Engineering

Integrated B.S./M.S./Ph.D. Track, Jul. 2026 – Present.

Research Advisor: Prof. Seokhyun Chung

RESEARCH INTERESTS

Anomaly Detection & Robust Predictive Modeling

Optimization-aware Learning & Decision-making

AI for Operations & Industrial Systems

Data-centric Methods for Real-world Applications

RESEARCH EXPERIENCE

System Intelligence & Analytics (SIA) Lab, Korea University

Apr. 2026 – Present

Student Researcher | Lab Manager since Jun. 2026

- Investigate remaining useful life prediction across heterogeneous operating conditions and limited-data settings, with a focus on meta-learning and model adaptation.

SKI-ML Lab, Seoul National University

Jul. 2025 – Jun. 2026

Research Intern | Structure & Knowledge Injection into Machine Learning

- Developed graph-based methods for verifying multi-step reasoning in question-answering systems, including entity linking and relation extraction.
- Developed an energy-based model for protein-decoy evaluation and structured-output modeling.

SAVANNA Lab, Korea University

Sep. 2024 – Aug. 2025

Research Intern | Supply Chain & Value Network Analytics

- Studied semi-supervised learning and data augmentation for battery-swapping demand forecasting, alongside station location optimization for urban delivery.
- Investigated transportation matching and equilibrium pricing in 5PL logistics platforms.

PUBLICATIONS & MANUSCRIPTS

Journal Article

- **Yoo, S.-H.**, Joo, S., Ko, K.*, and Jeong, T.* (2026). TriMa: Tri-strategy Margin-filtered Pseudo-labeling for Battery Swapping Demand Forecasting. *Journal of the Korean Institute of Industrial Engineers*. Accepted.

* Corresponding authors.

Manuscript Under Review

- Jeon, H., **Yoo, S.-H.**, and Lee, J.-Y. Where Search Agents Go Off the Rails: Graph-Grounded Step-Level Verification. Under review.

PATENT APPLICATION

- Method and System for Optimal Location Selection of Battery Swapping Stations for Electric Two-Wheelers. Korean Patent Application No. 10-2025-0038793. Filed.

SPONSORED RESEARCH PROJECTS

Role: Student Researcher

Development of Q-PINN-based Dark Factory Core Technology for Real-time Virtual Metrology and Autonomous Control in Semiconductor Fabrication Processes

National Research Foundation of Korea (NRF)

Project period: Jul. 2026 – Jun. 2029 | Ongoing participation

Design and Development of Personalized Industrial Safety AI Platforms with Multimodal Edge Intelligence and Ergonomist LLMs

National Research Foundation of Korea (NRF)

Project period: Mar. 2026 – Feb. 2031 | Ongoing participation

Integrated Optimization of Future Logistics and Freight Brokerage in Multi-Supply Chain Systems: Intelligent Last-Mile and Middle-Mile Algorithms Based on 5PL Platforms

National Research Foundation of Korea (NRF), Mid-Career Researcher Program

Participation: Mar. 2025 – Jul. 2025 | Project period: Mar. 2025 – Feb. 2028

Location Optimization of Battery Swapping Stations for Electric Two-Wheelers in Sustainable Urban Delivery

LINC 3.0, Industry–Academia Joint Technology Development

Participation: Sep. 2024 – Dec. 2024 | Project period: Jun. 2024 – Jan. 2025

CONFERENCE PRESENTATIONS & TALKS

Upcoming Invited Presentation

- 2026 INFORMS Annual Meeting. Invited presentation, upcoming.

Conference Contributions

- Ko, K., Cha, H., Kim, T., **Yoo, S.-H.**, and Jeong, T. (2025). A Study on Multilateral Transportation Matching and Equilibrium Price Determination in a 5PL Logistics Platform Environment. Fall Conference, Korean Institute of Industrial Engineers (KIIE), Daejeon, Korea.
- **Yoo, S.-H.**, Ko, K., Kim, T., and Jeong, T. (2025). Improving Electric Two-Wheeler Battery Swap Demand Forecasting via Clustering and Data Augmentation. Spring Conference, Korean Society of Supply Chain Management, Seoul, Korea.
- Choi, M., Ko, K., Kim, T., **Yoo, S.-H.**, Joo, S., and Jeong, T. (2024). Location Optimization of Battery Swapping Stations for Electric Two-Wheelers in Sustainable Urban Delivery Services. Fall Conference, Korean Society of Supply Chain Management, Seoul, Korea.
- Kim, T., Ko, K., Choi, M., **Yoo, S.-H.**, Joo, S., and Jeong, T. (2024). Data-Driven Location Optimization of Battery Swapping Stations for Electric Two-Wheelers in Urban Delivery Services. Fall Conference, Korean Institute of Industrial Engineers (KIIE), Seoul, Korea.

TEACHING EXPERIENCE

Machine Learning Theory and Practice

Spring 2025 & Fall 2025

Course Coordinator & Instructor | WeTIE, Korea University

- Organized and taught a student-led course combining machine learning theory with practical exercises.

HONORS & AWARDS

Honors & Scholarships

- IPESK Next-Generation Engineer, Institute for Promotion of Engineering and Science of Korea 2026
- Presidential Science Scholarship, Ministry of Science and ICT, Korea 2025
- Academic Excellence Award, Korea University 2023 – 2025
- Scholarship Recipient, Sang-Ah Scholarship Foundation 2024
- Outstanding Member (Top 1%), B.D.A, 8th cohort 2024

Competition Awards

- Finalist, Edge AI Developer Hackathon, Qualcomm 2025
- Encouragement Prize, Project Competition, Korean Society of Logistics 2025
- Bronze Prize, 20th University Students Industrial Engineering Project Competition, KIIE 2024
- Excellence Prize, KU–Yonsei Joint Industrial Engineering Academic Exchange Festival 2024
- Excellence Prize, FIELD CAMP Competition, KIIE 2023
- Excellence Prize, 67th Korea National Science Exhibition, Ministry of Trade, Industry and Energy 2021

LEADERSHIP & SERVICE

Lab Manager, SIA Lab, Korea University Jun. 2026 – Present

- Coordinate lab operations, seminars, onboarding, and shared computing resources; maintain the lab website and support research project documentation and administrative coordination.

SK LOOKIE, Korea University Sep. 2023 – Feb. 2025

President (2024); Startup Project Team Leader (Fall 2023)

- Led club operations, strategic planning, member engagement, and external partnerships for student social-venture projects.

WeTIE, Korea University Mar. 2023 – Present

Member (11th–15th cohorts); Education Division Executive Member (15th cohort)

Vice President, 41st Student Council

Department of Industrial & Management Engineering, Korea University

SELECTED PROJECTS & APPLIED EXPERIENCE

Student Success Center, Korea University May 2024 – Dec. 2024

Data Analytics Team Member

Analyzed student-participation data to assess program effectiveness and engagement trends.

Paperclip: A Tone-Sensitive Writing Assistant 2025

Team project for clear and culturally appropriate messaging; Qualcomm Edge AI Developer Hackathon finalist.

[Repository](#)

Selected Analytics & Optimization Projects

- Regional festival marketing: developed a Festival Success Index in collaboration with KT Big Data Center.
- 3D bin packing: analyzed reinforcement-learning-based volume utilization under stack and conveyor configurations (KIIE, 2024).
- Public education facilities: modeled location decisions using school-age population data and user-weighted capacitated facility location optimization (FIELD CAMP, 2023).

Additional projects: water-supply anomaly detection; college basketball outcome prediction; automated IPC patent classification; university timetable optimization.

ADDITIONAL TRAINING & CERTIFICATION

Advanced Data Analytics Semi-Professional (ADsP). Intellectual Property Camp, Korea University (2024); Creative Challenger Program, Korea University (2023); Codeit University Coding Bootcamp, 12th cohort (2023).