

Hyunjae Lee

[GitHub](#) | [Email](#) | [LinkedIn](#)



RESEARCH INTEREST

Manufacturing, Simulation, Reinforcement Learning

EDUCATION

Pusan National University

Graduation date: Aug 2023

Mar 2017 - Aug 2023 Bachelor at **Industrial Engineering** (GPA: 4.03/4.5) (Rate: 3/54)
Sep 2020 - Aug 2023 Bachelor at **Big Data Interdepartmental Major** (Second major)

KAIST

Expected Graduation date: Feb 2031

Mar 2024 - Mar 2025 Master at **Graduate School of Data Science**

Mar 2025 - present Integrated M.S/Ph.D at **Industrial & Systems Engineering**

WORK EXPERIENCE

Bigdata Analytics and Engineering Lab Internship Pusan National University May 2021 - Jun 2023

- 스마트 항만 IoT 인프라 구축 기술 개발 Jun 2021 - Aug 2022
 - Organized and visualized the data using Excel and Python
- IoT 및 지능정보 기반 동남권 제조 IT 기술 혁신 및 인재 양성 Sep 2021 - Dec 2021
 - Developed a simple and effective port builder using C# and Unity
- 인공지능 기반 컨테이너 운임 예측모형 개발 Dec 2021 - Aug 2022
 - Analyzed and forecasted the Shanghai Container Freight Index (time-series data)
 - Wrote a paper on feature selection in time-series data
- 프로세스 자가 재설계 및 최적화를 위한 인공지능 기반 자동화 프로세스 마이닝 연구 Sep 2022 - Jun 2023
 - Researched real-time object detection & semi-supervised learning from truck images on road CCTV
 - Predicted arrival time, turnaround time, turn time for external container trucks using VBS data
- 차량 반출입예약시스템 해외 항만 적용사례 분석 Nov 2022 - Dec 2022
 - Researched characteristics of ports that are applied VBS and wrote a document about it

Data-oriented Automation Intelligence for Manufacturing Lab KAIST Mar 2024 - present

- 지능형 공장 자동화 물류 운영 알고리즘 및 운영 플랫폼 개발 Mar 2024 - Mar 2025, Project Manager
 - Modularization of OHT environment using Plant Simulation (Synustech)
- HVC Charging Loss 최소화를 위한 시뮬레이션 구축 기반 Crane 스케줄링 정책 제안 Aug 2024 - Oct 2024
 - Developed and implemented stacker crane operation logic in C# after validating improvements through Automod
 - Applied successfully at the Samsung SDI Hungary plant, resulting in confirmed 1.91% throughput improvement
- APC 참조 데이터 구성 요건 최적화 및 만료 시점 예측 알고리즘 개발 Mar 2025 - Oct 2025, Project Manager
 - Developed an AI model predicting reference-data expiration to reduce APC calculation failures

ADDITIONAL INFORMATION

- Body Morphometry AI Segmentation Online Challenge in Kaggle** [16/27] Jul 2021 - Aug 2021 
Developed a kidney segmentation AI model, a BLU-net using U-net twice
- Public Big-Data Youth Internship** Jul 2021 - Sep 2021 
Conducted a project about segmentation between kidney and cancer using Python, Pytorch and Flask
- Undergraduate Research** Jan 2022 - Feb 2022
Learned theories and techniques about deep learning
- Shopping mall sales forecast competition in Dacon** [1/1198] Jul 2022 - Aug 2022 
Got the **Top Prize** based on clustering with TimeSeriesKMeans in time-series data
- Best Award in Capstone Design** Organized by IE in Jun 2023, Team Leader
Proposed the development of a comprehensive framework including XAI for identifying the key factors that influence the Dwell Time of import containers in port terminal

PUBLICATIONS

컨테이너 운임 지수 예측 요인 연구: 코로나19 이전과 이후 비교
대한산업공학회 춘계공동학술대회 논문집, p2145-2155, Jun 2022, Published
이상재, 김도희, 박한별, 이현재, 이가원, 배혜림

Ensemble method for feature selection in time-series prediction based on image similarity
ICIC Express Letters Part B: Applications, July 2023, Published
Hyunjae Lee, Dohee Kim, Sangjae Lee, Hanbyeol Park, Hyerim Bae, Keonwoo Choi

Analysis of Key Factors of Import Container Dwell Time with Explainable Artificial Intelligence
Maritime Transport Research, Apr 2024, Published
Yongjae Lee, Kihun Park, **Hyunjae Lee**, Jongpyo Son, Seonhwan Kim, Hyerim Bae

CONFERENCE

Development and Case Study of a Single-Crane Task Allocation System for Secondary Battery Formation Process
CDE학회 동계학술대회, Feb 2025
이현재, 장영재

Multi-modal 환경에서의 MCS 관점 기반 반도체 Fab 물류 운영 최적화
대한산업공학회 추계학술대회, Nov 2025
이현재, 장영재

CERTIFICATIONS & QUALIFICATIONS

- TEPS 369 Feb 2023
- Computer Specialist in Spreadsheet & Database Level - I Jul 2020
- SQLD Jun 2021

SCHOLARSHIPS

Academic Excellence Scholarship 2017-1, 2017-2, 2018-1, 2018-2, 2021-1, 2021-2, 2022-1
Scholarship From Lotte Foundation 2022-1