

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
 - Develope 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