

Hyunwoo Shin

hyunwoos@vt.edu

EDUCATION

Virginia Polytechnic Institute and State University

Ph.D. in Industrial and System Engineering

Blacksburg, VA

Current student

Korea Aerospace University

M.S. in Logistics, School of Air Transport, Transportation, and Logistics

Goyang city, South Korea

Mar 2018 – Feb 2020

Korea Aerospace University

B.S. in Logistics, School of Air Transport, Transportation, and Logistics

Goyang city, South Korea

Mar 2012 – Feb 2018

PUBLICATION

- [1] **Hyunwoo Shin**, Xi Chen and Sait Tunc. A Comprehensive Simulation Approach to Lung Allocation: Model Development, Verification and Validation. Working Paper
- [2] **Hyunwoo Shin**, S. Tunc, P. Afeche, M. Begen, B. Sandikci, F. Murillo, B. Hansen, M. Claasen and G. Sapisochin. Deciphering Organ Offer Decisions: An In-depth Analysis of the Canadian Liver Transplant System. Working Paper
- [3] **Hyunwoo Shin**, S. Tunc, X. Chen, D. Kreisel and V. Puri. Temporal Analysis of Organ Allocation: Forecasting Dynamic Scores. Working Paper
- [4] **Hyunwoo Shin**, and Junjae Chae (2020). A Performance Review of Collision-Free Path Planning Algorithms. *Electronics*, 9(2), 316. DOI: 10.3390/electronics9020316
- [5] Hyeok-Yeon Lee, **Hyunwoo Shin**, and Junjae Chae (2018). Path planning for mobile agents using a genetic algorithm with a direction guided factor. *Electronics*, 7(10), 212. DOI: 10.3390/electronics7100212
- [6] Minhee Kim, **Hyunwoo Shin**, and Junjae Chae (2017). Merge Control using Reserve Ahead Point in Baggage Handling System. *Journal of the Society of Korea Industrial and Systems Engineering*, 40(2), 60-67.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant (*Academic Advisor: Dr. Sait Tunc*)

Dec 2021 – Aug 2022

Virginia tech

Blacksburg, VA

- Processing data for lung transplantation and developing a simulation model for lung transplant system
- Study a model for estimating lung allocation score with uncertainty

Researcher

Dec 2020 – Jul 2021

Logistics System Lab, Korea Aerospace University

Goyang city, South Korea

- **CyberLogitec & Korea Maritime Institute**: Developing a control logic for multi-shuttle operation in an automated container yard and simulation oracle to validate the logic
- **Nexen Tire & SL solution**: Developing an algorithm to solve job assignment problem for new business model

Research Assistant (*Academic Advisor: Dr. Junjae Chae*)

Mar 2018 – Feb 2020

Logistics System Lab, Korea Aerospace University

Goyang city, South Korea

- **Hanjin Logistics Institute**: Analyzed a new logic for automation of gantry cranes used in a port by simulation [1]
- **Korea Aerospace University**: Surveyed the methodologies for UAV path planning and analyzing the efficient and characteristics of the popular algorithms which are heuristic or metaheuristic [2]

Research Intern (*Academic Advisor: Dr. Junjae Chae*)

Mar 2016 – Feb 2018

Logistics System Lab, Korea Aerospace University

Goyang city, South Korea

- **SK Telecom & SL Solution**: Developed an algorithm for finding a reasonable solution of Vehicle routing problem considering real distance based on a map, characteristics of products and operation rule within reasonable time
- **Ministry of Land, Infrastructure and Transport**: Developed an unmanned logistic system with UAV, a path finding program based on Genetic algorithm (GA) considering obstacles was studied [3]
- Analyzed a merging control logic for Baggage Handling system using AutoMod [4]
- Developed a Genetic algorithm (GA) for solving sudoku problem using C++

TEACHING EXPERIENCE

ISE 4424: Logistics Engineering <i>Graduate Teaching Assistant</i>	Fall 2023 <i>Virginia Tech</i>
ISE 2034: Data Management for Industrial and Systems Engineers <i>Graduate Teaching Assistant</i>	Spring 2023 <i>Virginia Tech</i>
ISE 5204: Manufacturing Systems Engineering <i>Graduate Teaching Assistant</i>	Fall 2022 <i>Virginia Tech</i>
ISE 4404: Statistical Quality Control <i>Graduate Teaching Assistant</i>	Fall 2022 <i>Virginia Tech</i>
Operations Research 1 <i>Lecturer</i> <ul style="list-style-type: none">• Introduction to linear programming for sophomore	Spring 2021 <i>Korea Aerospace University</i>
Analysis of Logistics System <i>Teaching Assistant</i>	Fall 2018 & Fall 2019 <i>Korea Aerospace University</i>

PRESENTATIONS

INFORMS <i>Annual Meeting 2023</i> <ul style="list-style-type: none">• Hyunwoo Shin, Xi Chen and Sait Tunc. Forecasting Organ Transplant Allocation Scores Using Machine Learning Models	Phoenix, AZ
Decision Science Institute (DSI) <i>49th Annual Meeting 2018</i> <ul style="list-style-type: none">• Hyunwoo Shin, Junjae Chae, and Jae-Ho Bae. The Algorithms Solving Collision-free Shortest Path Planning for Mobile Agents: A Performance Review	Chicago, IL
Korea Logistics Society <i>2018 Fall Conference</i> <ul style="list-style-type: none">• Hyunwoo Shin, and Junjae Chae. A Performance Review of Collision-Free Path Planning Algorithms for AGV	Goyang city, Gyeonggi
The Society of Korea Industrial and Systems Engineering <i>2017 Spring Conference</i> <ul style="list-style-type: none">• Gyeongho Gim, Hyunwoo Shin, Hansol Lim and Yeongmin Yun. Multi-modal VRP algorithm with trucks and drones: A case study of Seoul (advised by Junjae Chae)	Daejeon
The Society of Korea Industrial and Systems Engineering <i>2016 Autumn Conference</i> <ul style="list-style-type: none">• Hyunwoo Shin, Minhee Kim and Sanghun Lee. Conveyor Merge Control Logic in Baggage Handling System (advised by Junjae Chae)	Seoul

HONORS & AWARDS

Scholarship for excellent academic records <i>Korea Aerospace University</i> <ul style="list-style-type: none">• Undergraduate: 1st Semester of 2013, 1st Semester of 2016, 2nd Semester of 2016, 1st Semester of 2017, and 2nd Semester of 2017• Graduate: 1st Semester of 2018, 2nd Semester of 2018, and 1st Semester of 2019
Best Paper Award <i>Korea Logistics Society, 2018 Fall Conference</i>

TECHNICAL SKILLS

Languages: Java, Python, C++, R, MATLAB
Software Packages: AutoMod, ARENA, ExtendSim, CPLEX, RapidMiner, Minitab