

Jeongjoon Gwon

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Education

Korea Advanced Institute of Science and Technology (KAIST) Mar 2020 – Feb 2027
B.S. in Industrial & Systems Engineering; double major in Computer Science (expected)

- GPA: 3.54/4.3 (cumulative), 3.69/4.3 (Industrial & Systems Engineering major)
- Selected courses (grade): Introduction to Operations Research (A+), OR: Optimization (A0), Supply Chain Management (A0), Scheduling Theory and Applications (A0), Production Management I (A0), HCI Design (A+)
- Thesis: *Resource-Constrained Project Scheduling Optimization via Large-Language-Model-Guided Genetic Algorithms* (advisor: Prof. Hyun-Jung Kim) [1]

University of Washington, Seattle, USA — Exchange Student Program Jan 2026 – Jun 2026

- GPA: 3.96/4.0, Dean's List
- Coursework: Transportation Logistics (graduate course), Artificial Intelligence, Introduction to Data Science, Introduction to Data Management, Introduction to Digital Twins
- Funded by the Korea–U.S. Advanced Industry Youth Exchange Scholarship

Sejong Academy of Science and Arts, Sejong, Korea Mar 2017 – Feb 2020

- Specialized high school for mathematics and science

Research Interests

- **Goals:** design and operation of urban parcel logistics networks — loading-zone location and allocation, curb rules and pricing, last-mile routing under uncertain demand
- **Approaches:** optimization (stochastic, robust, integer, and learning-augmented), simulation, and open geospatial data infrastructure

Manuscripts

- [2] **J. Gwon**, G. Dalla Chiara, A. Esmaili, A. Goodchild. A harmonized geospatial dataset of commercial vehicle loading zones in 11 U.S. cities. *In preparation for Scientific Data*, 2026.
- [1] **J. Gwon**. Resource-Constrained Project Scheduling Optimization via Large-Language-Model-Guided Genetic Algorithms. B.S. thesis, KAIST, 2025.

Research Experience

Urban Freight Lab, University of Washington — Student Researcher Jan 2026 – Present
Advisor: Prof. Anne Goodchild

- **Open dataset of commercial vehicle loading zones:** built a harmonized geospatial dataset of 13,148 zones in 11 U.S. cities from public municipal data; rebuilt city-specific scripts into one reproducible R pipeline. [2]
- **Zone reconstruction for cities without an official layer:** designed a method combining parking-slot, curb-line, and sign data (Portland); 90% of reconstructed zones fall within 10 m of a proprietary INRIX curb layer, and 85% of INRIX zones within 10 m of ours. [2]
- **Low-Pollution Neighborhoods (with Seattle DOT):** compiled a structured database of 84 freight pollution-reduction strategies and assessed their fit for four Seattle neighborhoods.

Advisor: Prof. Woonam Hwang

- **Sustainable and responsible supply chain operations:** reviewed the MSOM literature on responsible sourcing, supplier compliance, and regulation; presented papers in the lab's weekly seminar and delivered a final analysis of compliance incentives under the EU CSDDD.

Advisor: Prof. Hyun-Jung Kim

- **LLM-guided genetic algorithm for project scheduling:** formulated a Samsung E&A scheduling problem as an RCPSP and designed a GA with neighborhood search; added a rule-based natural-language front end that turns plant events into constraints and an LLM that tunes the GA's hyper-parameters interactively and explains the schedule. [1]
- On PSPLIB benchmarks, reduced average makespan by 0.7% over the base GA ($p < 0.05$).

Advisor: Prof. Young Jae Jang

- **Simulation-based layout evaluation for EV factories (with General Motors):** built an agent-based discrete-event simulation of an AGV-based matrix-assembly plant from GM data, with a Python controller (COM API) that runs candidate layouts and compares makespan and utilization.
- Implemented rule-based control (routing, dispatching, deadlock avoidance) and a DQN agent (PyTorch) that selects among dispatching heuristics from the simulation state; co-developed a MILP for the flexible job shop with process-plan flexibility and transport times with GM R&D.
- Led weekly meetings with GM engineers over a one-year collaboration and presented results at GM headquarters, Detroit.

Awards and Scholarships

Korea–U.S. Advanced Industry Youth Exchange Scholarship | Ministry of Trade, Industry and Resources Nov 2025

- One of about 170 STEM undergraduates selected nationwide for exchange study at U.S. universities; awarded \$9,000 for one semester

Woomi Hope Foundation Scholarship | Woomi Hope Foundation Aug 2025

- Awarded \$2,300 to descendants of national patriots for academic promise and social commitment

Choi Younghee Love Sharing Scholarship | KAIST Industrial & Systems Engineering Oct 2024, Apr 2025

- Departmental scholarship for leadership, academic performance, and service; awarded twice, \$1,400 each

Next-Generation Engineer | Institute for Promotion of Engineering and Science of Korea Nov 2024

- Selected as an outstanding engineering undergraduate

Army Commendation Medal | U.S. Army Apr 2024

- Awarded for exemplary service as a KATUSA augmentee to the Eighth Army

Presidential Science Scholarship | Korea Student Aid Foundation Mar 2022

- Recognized as one of Korea's top 120 STEM students by the President; full tuition and stipend totaling \$17,500

Undergraduate Research Grant | KAIST Advanced Manufacturing Challenge Sep 2021

- Awarded \$6,200 for the GM electric-vehicle factory layout simulation project

Teaching and Mentoring

Mentor , KAIST Science Outreach Program — math, science, and Python for underserved high school students	Mar 2025 – Aug 2025
Mentor , ECLDA Mentoring Program — data, AI, and entrepreneurship workshops at 15 secondary schools	Nov 2021 – Jul 2024
Tutor , Calculus I and Introduction to Programming, KAIST	Sep 2021 – Jun 2022
Mentor , Samsung Dream Class — online mentoring for middle school students	Dec 2021 – Feb 2022

Service and Activities

Principal Clarinet , KAIST Orchestra (also Director of Public Relations)	Sep 2020 – Present
Clarinetist , Campus Philharmonia Orchestra, University of Washington	Jan 2026 – Jun 2026
KAIST Pavilion Representative , CES 2025, Las Vegas	Jan 2025
Military service as a KATUSA (Korean Augmentation to the U.S. Army) — served alongside U.S. Army personnel as Awards and Decorations Specialist, Eighth Army ROKA Support Group HQ	Nov 2022 – May 2024

Technical Skills

Programming: Python, R, C/C++, Java, SQL
Optimization & Simulation: Siemens Plant Simulation (agent-based discrete-event simulation)
Data & GIS: pandas, GeoPandas, R, QGIS
Languages: Korean (native), English (full professional proficiency)

References

Anne Goodchild

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Director, Urban Freight Lab
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