DONG HO LEE

Multi-Agent Planning & Control

Austin, TX | leedh0124@utexas.edu | leedh0124.github.io
GitHub | LinkedIn | Google Scholar

Seeking **research internships in 2027** and future full-time roles.

RESEARCH & ENGINEERING

The University of Texas at Austin

Research Assistant | CLeAR Lab

Aug 2023 - Present — Austin, TX

- **Planning and control (ongoing).** Developing a customized Newton solver for real-time receding-horizon control of multi-agent systems with ordered objectives. Preliminary simulations cover highway overtaking and cooperative pot transfer.
- **Games of Ordered Preference (GOOP).** Developed game-theoretic models and numerical algorithms for strategic agents with strictly ordered objectives, such as safety before progress.
- **Solver scalability.** Derived a polynomial-size reformulation with an approximately **10× speedup** in mean solve time on four-agent, four-level nonquadratic benchmarks, from the **formulation change alone**.
- **Robot interaction.** Co-developed mixed Nash/Stackelberg methods; the team evaluated receding-horizon planning in simulation and on **three ground robots** (WAFR 2026).
- **Hierarchical routing.** Developed a convex reformulation and branch-and-bound solver for route assignment, finding globally optimal solutions for the modeled problem (IEEE L-CSS 2025).

KAIST

Research Assistant | Strategic Aerospace Initiative

Sep 2020 - Jul 2023 — Daejeon, Korea

- **Learning-based routing.** Built a Transformer-based reinforcement learning policy for multi-UAV replanning under fuel and time constraints; developed data-efficient training for routing problems.
- **Aerodynamic prediction.** Built deep residual networks to predict aerodynamic coefficient changes under extreme flow conditions.

Agency for Defense Development

Research Officer / First Lieutenant

Jun 2017 - May 2020 — Daejeon, Korea

- **UAV mission planning.** Developed multi-UAV planning using mixed-integer programming (Gurobi) and genetic algorithms; built autonomous mission-planning software for a Linux-based UAV simulator.
- Co-inventor of **KR102063851**, a registered patent for unmanned vehicle mission-allocation optimization (2020).

TECHNICAL SKILLS

Programming and tools

Python, Julia, MATLAB
Gurobi, Linux, C/C++

Planning and control

Receding-horizon control
Trajectory optimization
Multi-robot coordination

Optimization and learning

Constrained optimization
Multilevel optimization
Mixed-integer programming
Nash and Stackelberg games
Deep reinforcement learning
Transformers

EDUCATION

The University of Texas at Austin

Ph.D., Aerospace Engineering
Expected May 2028
Advisor: David Fridovich-Keil

KAIST

M.S., Aerospace Engineering
Aug 2022

B.S., Aerospace Engineering
Feb 2017 | Magna cum laude

SELECTED PUBLICATIONS

Tractable GOOP reformulation

First author | 2026 preprint
Under review at SIAM J. Optimization
Paper | Code

Games of Ordered Preference

First author | IEEE RA-L, 2025
Paper | Code

Hierarchical routing

First author | IEEE L-CSS, 2025
Paper