

Jongann Lee

217-200-0578 | jongann2@illinois.edu | linkedin.com/in/jongann-lee | github.com/jongann-lee

EDUCATION

University of Illinois Urbana-Champaign

Ph.D. Student in Electrical and Computer Engineering (GPA: 4.0/4.0)

Aug. 2025 – Present

Urbana, IL, USA

Seoul National University

Bachelor of Engineering in Mechanical and Aerospace Engineering (GPA: 4.13/4.3)

Mar. 2019 – Aug. 2025

Seoul, South Korea

- Rank 1/57, Summa Cum Laude

EXPERIENCE

LEADCAT Lab, UIUC

Research Assistant

Aug. 2025 – Present

Urbana, IL, USA

- Introduced a **heterogeneous-visibility formulation** for navigation under uncertain connectivity and developed a tree-based path-sampling algorithm with a utility-weighted observation reward; published at IROS 2026 [P2].
- Developing a **Graph Neural Network** based multi-agent policy for planning with hybrid scout-rescue agents in unknown search and rescue scenarios using reinforcement learning.

Corteva

Industry Sponsored Research

Aug. 2025 – Dec. 2025

Remote

- Built a multi-agent chatbot that delivers transparent, source-grounded explanations of supply-chain optimization outputs for non-technical stakeholders.
- Implemented an **agentic RAG workflow** in LangGraph with iterative retrieve–tool-use–validate loops; routed queries to role-based expert agents and synthesized answers via an aggregator.

SolverX

AI Researcher

Feb. 2025 – Jul. 2025

Seoul, South Korea

- Proposed **SIEVE**, an SE(3)-equivariant **self-supervised learning** method for point clouds; scaled pre-training to 876k samples, resulting in a first-author NeurIPS 2026 paper [P1].
- Developed and implemented SE(3)-equivariant deep learning models, including Transformer and Graph Neural Network architectures, using Python, PyTorch, and PyTorch Geometric.
- Successfully trained equivariant models to predict Finite Element Analysis (FEA) simulations, achieving accuracy on par with standard baselines while guaranteeing SE(3)-equivariance.

POLAR Lab, Polytechnique Montréal

Visiting Researcher

Jun. 2024 – Oct. 2024

Montréal, QC, Canada

- Designed a 2 degrees of freedom ankle joint using a compliant mechanism to enable inversion/eversion movements and dorsiflexion/plantarflexion.
- Fabricated a 3D-printed prototype and integrated it with the existing PERL ankle exoskeleton to validate its mechanical performance.

LARR Lab, SNU

Undergraduate Research Assistant

Sept. 2023 – June 2024

Seoul, South Korea

- Developed an automatic tuner for the parameters of the geometric tracking attitude controller for the quadrotor using the **TD3 reinforcement learning algorithm**.
- Trained the reinforcement learning based tuner using data from a PyBullet quadrotor simulation wrapped in a Gym environment.

InRoL Lab, SNU

Undergraduate Research Intern

Mar. 2023 – Jun. 2024

Seoul, South Korea

- Derived a geometric trajectory-tracking controller for a collective pitch-tilting multirotor and established position, yaw, and pitch as differentially flat outputs.
- Proved almost-global exponential attractiveness of the closed-loop dynamics using Lyapunov analysis and validated the controller in MATLAB.

Republic of Korea Air Force (military service)

English-Korean Interpreter/Translator

May 2020 – Feb. 2022

Osan Air Base, South Korea

- Enabled clear communication for Air Force Operations Command by accurately interpreting operational dialogues and translating technical documents for ROK and US Air Force leadership.

PUBLICATIONS

- [P1] **Jongann Lee**, Sun Woo Park, and Yun Young Choi, “SIEVE: Overcoming Topological Obstruction in Equivariant Self-Supervised Learning,” in *Advances in Neural Information Processing Systems (NeurIPS)*, 2026.
- [P2] **Jongann Lee** and Melkior Ornik, “Navigating in Uncertain Environments with Heterogeneous Visibility” in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2026.

PROJECTS

- Autonomous Vehicle Class Project** | *Gaussian Splat, SLAM* Jan. 2026 – May. 2026
- Built a metrically scaled digital twin of a driving environment by registering GEM e4 LiDAR scans with KISS-ICP, optimizing poses with GTSAM, and initializing a Gaussian Splat reconstruction from the resulting map.
- DOB Unicycle Controller** | *MATLAB, Simulink* Oct. 2023 – Dec. 2023
- Augmented an existing PD controller for a unicycle by adding a disturbance observer inner loop.
 - Tested the controller in MATLAB and Simulink, confirming the performance improvement in the form of reduced overshoot.
- Drone Club Bulnabi** | *ROS2, PX4-Autopilot, C++* Mar. 2019 – June 2024
- As President, drove club growth from 10 to 40 members, establishing a core team of 25 people that went on to secure a 1st place finish in the 2024 Korea Robot Aircraft Competition.
 - Created an autonomous quadrotor capable of detecting and avoiding obstacles, automatically landing on a designated landing area, detecting a pre-determined delivery point, and delivering a payload to it.
 - Implemented a communication system for sending flight data and commands between the PX4-Autopilot flight computer system and the ROS2 companion computer system using the fast-DDS protocol.

TEACHING, SERVICE

- **Teaching Assistant:** ECE 470 Intro to Robotics (*Fall 2026*)
- **Reviewer:** CDC (2025), ITSC (2025), ICRA(2026)

SKILLS

Programming: Python, C/C++, MATLAB

Libraries: PyTorch, PyTorch Geometric, Gym, Simulink

Robotics: ROS2, PX4-Autopilot, SolidWorks

Languages: English (TOEFL iBT 117), Korean (native)