# Yunwoo Lee

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## RESEARCH AREAS

**Multi-agent system, Unmanned Vehicle Trajectory Planning, Aerial tracking**

## EDUCATION

**CARNEGIE MELLON UNIVERSITY,** Pittsburgh, United States, Postdoctoral Researcher, Robotics Institute,

**Mar. 2025 ~ Current**

- AirLab (https://theairlab.org/)
- Principal Investigator: Sebastian Scherer
- Financially supported by Korean Institute for Advanced Technology (KIAT)

**SEOUL NATIONAL UNIVERSITY,** Seoul, South Korea, Ph.D. in Mechanical and Aerospace Engineering,

**Sep. 2019 ~ Feb. 2025**

- Lab for Autonomous Robotics Research (LARR, https://larr.snu.ac.kr)
- Principal Investigator: H. Jin Kim
- Cumulative GPA: 4.14 / 4.3 (Major GPA: 4.14 / 4.3)

**SEOUL NATIONAL UNIVERSITY,** Seoul, South Korea, B.Sc., Electrical and Computer Engineering,

**Mar. 2012 ~ Feb. 2019**

- Cumulative GPA: 3.96 / 4.3 (Major GPA: 4.12 / 4.3), *Summa Cum Laude*

## PUBLICATIONS

**JOURNAL**
- DMVC-Tracker: Distributed Multi-Agent Trajectory Planning for Target Tracking Using Dynamic Buffered Voronoi and Inter-Visibility Cells, IEEE Robotics and Automation Letters (**RA-L**)
- BPMP-Tracker: A versatile Aerial Target Tracker Using Bernstein Polynomial Motion Primitives, IEEE Robotics and Automation Letters (**RA-L**)
- Mono-Camera-Only Target Chasing for a Drone in a Dense Environment by Cross-Modal Learning, IEEE Robotics and Automation Letters (**RA-L**, 2nd author)
- Decentralized Trajectory Planning for Quadrotor Swarm in Cluttered Environments with Goal Convergence Guarantee, International Journal of Robotics Research, (**IJRR**, 2nd author)
- DLSC: Distributed Multi-Agent Trajectory Planning in a Maze-Like Dynamic Environments Using Linear Safe Corridor, IEEE Transactions on Robotics (**T-RO**, 2nd author)
- Autonomous Aerial Dual-Target Following Among Obstacles, IEEE **Access**, 2nd author
- Multirobot Collaborative Monocular SLAM Utilizing Rendezvous, IEEE Transactions on Robotics (**T-RO**, 2nd author)

**CONFERENCE**
- Target-Visible Polynomial Trajectory Generation within an MAV Team, IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**, 2021)
- Navigation-Assistant Path Planning within an MAV Team, IEEE/RSJ International Conference on Robots and Systems (**IROS**, 2020)
- Integrated Motion Planner for Real-Time Aerial Videography with a Drone in a Dense Environment, IEEE International Conference on Robotics and Automation (**ICRA**, 2nd author, 2020)

**PREPRINTS**
- MC-Swarm: Minimal-Communication Multi-Agent Trajectory Planning and Deadlock Resolution for Quadrotor Swarm
- QP Chaser: Polynomial Trajectory Generation for Autonomous Aerial Tracking

## PROJECT WORK

**Unmanned aerial/ground vehicle, Ministry of Science and Technology of Korea**　　　　**Mar 2022 ~ Feb. 2025**

**Drone swarm, Korean Aerospace Industries**　　　　**Mar. 2022 ~ Jan. 2023**

**Autonomous driving, Ministry of Science and Technology of Korea**　　　　**Sep. 2019 ~ Dec. 2021**

## TEACHING EXPERIENCE

**SEOUL NATIONAL UNVIERSITY, Siheung campus, South Korea**
- Arrange hands-on course about PID control for micro quadrotors (for 20 students, with 10 teaching assistants)

## WORK EXPERIENCE

**INTERNSHIP:** Infineon Technologies Korea

**Jan. 2018 ~ Aug. 2018**
- Designed a 3-phase inverter using a 32-bit MCU
- Run a sensor-less motor control algorithm for BLDC motors

**INTERNSHIP:** Electrical Engineering & Power Electronics LAB**,** Seoul National University, (Supervisor: Sul, Seung Ki)
**Nov. 2016 ~ Sep. 2017**
- Worked on constructing an experimental set for Si-C MOSFET test in Elevator Motor Drive
- Constructed an M-G set for implementing an IPMSM motor control algorithm in a course for Korean companies

## AWARDS

**SAMSUNG HUMANTECH PAPER AWARD, 27th**
- Silver prize (Title: Multirobot Collaborative Monocular SLAM Utilizing Rendezvous, as coauthor)

## REFERENCES

**Prof. H. Jin Kim, Seoul National University, South Korea**
- e-mail: hjinkim@snu.ac.kr
- LabPage: https://larr.snu.ac.kr

**Prof. Sebastian Scherer, Carnegie Mellon University, United States**
- e-mail: basti@andrew.cmu.edu
- LabPage: https://theairlab.org

**Prof. Jungwon Park, Seoul National University of Science and Technology, South Korea**
- e-mail:  jungwonpark@seoultech.ac.kr
- LabPage: https://lars.seoultech.ac.kr/

**Dr. Boseong Jeon, Samsung Research, South Korea**
- e-mail: junbs95@gmail.com