Jongann **Lee**

Aerospace Engineer · Controls Systems Engineer

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Research Interest: Non-Linear Control, Aerial Manipulation, Reinforcement Learning, SLAM

Education

Seoul National University
Seoul, Republic of Korea

B.S.E. in Mechanical and Aerospace Engineering — *Mar. 2019 - Present*

- Overall GPA: 4.17/4.30 | Major GPA: 4.20/4.30

Sejong Science High School
Seoul, Republic of Korea

Special high school for gifted STEM students — *Mar. 2017 - Feb. 2019*

- Graduated one year early with *magna cum laude*

Experience

Interactive and Networked Robotics Laboratory(Prof. Dongjun Lee)
Seoul, Republic of Korea

Undergraduate Researcher — *Mar. 2023 - Present*

- Adopted a novel adaptive control scheme based on the geodesic distance of the manifold of physically consistent inertial parameters
- Implemented the adaptive control scheme to a quadrotor using the geometric tracking controller.
- Demonstrated the control scheme's performance using a Matlab simulation of a quadrotor

J.Maple
Seoul, Republic of Korea

Research Intern — *Sept. 2023 - Dec. 2023*

- Implemented various LiDAR inertial odometry(LIO) algorithms for quadrotor navigation without GPS.
- Tested the algorithm's computational and tracking performance using pre-recorded LiDAR data.

Data Design Engineering
Seoul, Republic of Korea

Research Assistant — *Jun. 2022 - Aug. 2022*

- Performed research on satellites and their payload, specifically focusing on Earth observation satellites and synthetic aperture radar(SAR).

Republic of Korea Air Force(military service)
Pyeongtaek, Gyeonggi, S.Korea

English-Korean Interpreter/Translator — *May. 2020 - Feb. 2022*

- Worked as an interpreter/translator for the Air Force Operations Command A3, interpreting various operational dialogue between ROK and US air force officers, and translating English USAF documents, doctrines and emails for our ROK members and vice versa.

Projects

Autonomous Quadrotor System for Payload Delivery
Drone Club Bulnabi

Team leader — *Jul. 2022 - Jul. 2023*

- Participated in the Korea Robot Aircraft Competition and 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 fast DDS based communication system for sending flight data and commands between the PX4-Autopilot and ROS2 systems.
- Designed and implemented a real time Bezier curve trajectory generation algorithm with the ability to update the destination in real time.

Disturbance Observer Controller for a Unicycle
Advanced Control Methods Class

Class project — *Oct. 2023 - Dec. 2023*

- Augmented an existing PD controller for a unicycle by adding a disturbance observer inner loop, improving the performance by reducing the overshoot.
- Implemented and tested the controller in Matlab and Simulink, confirming the performance improvement.

Extracurricular Activity

SNU Drone Club Bulnabi — *Seoul National University*

President — *Mar. 2019 - Present*

- Designed and built a model fixed wing in 2019.
- Served as the vice president from Jan. 2022 to Jul. 2023, participating and leading the communication team for the Korea Robot Aircraft Competition.
- Currently serving as the president, overviewing the day to day operation of the club and planning for future events.

SNUBuddy(Exchange Student Helper) — *Seoul National University*

Member — *Jan. 2022 - Jun. 2022*

- Helped international exchange students at Seoul National University settle into Korea and experience the Korean culture by taking them around various venues and events.

Scholarships & Honors

Scholarships

2023 **Kwanjeong Domestic Undergraduate Scholarship**, Kwanjeong Educational Foundation

2022 **Boeing Korea Scholarship**, Boeing Korea

2019 **College of Engineering Scholarship for Academic Excellence**, SNU College of Engineering

2018 **Hanseong Nobel Prodigy Scholarship**, Hanseong Sonjaehan Scholarship Foundation

Honors

2023 **Semi-Finalist**, Korea Robot Aircraft Competition — *Republic of Korea*

Skills

Programming Python, C/C++, Matlab, Simulink

Engineering ROS, PX4-Autopilot

Languages Korean (native proficiency), English (bilingual proficiency, TOEFL iBT 117)