



MINHYUK JANG

✉ jason4012@snu.ac.kr  [minhyuk-jang](https://www.linkedin.com/in/minhyuk-jang)  [jangminhyuk.github.io](https://github.com/jangminhyuk)

Education

Seoul National University (SNU)

Mar 2019 – PRESENT

B.S. in Mechanical Engineering, Interdisciplinary Major in Artificial Intelligence

Seoul, South Korea

- GPA : 3.99/4.0, Outstanding B.S. Thesis Presentation Award
- Relevant Coursework: Nonlinear System Theory (Graduate, A+), Advanced Control Techniques (A+)
- 18 months of military service included

Research Interests

- Control Theory (Robust Control, Optimal Control, Data-Driven Control, Adaptive Control, Nonlinear Control)
- Safety Guarantee, Safety-Critical Systems (Multirotor, VTOL, Robotics, etc), Multi-Agent Systems

Publications

- Minhyuk Jang, Astghik Hakobyan, and Insoon Yang. ***Distributionally Robust Control and State Estimation for Linear Stochastic Systems***, **IEEE Transactions on Automatic Control (TAC)**, (under review), [\[arXiv\]](#)
- Minhyuk Jang. *Stability Analysis of Disturbance Observer under Model Uncertainty with Different System Degrees between True and Nominal Systems*, Institute of Control, Robotics and Systems (**ICROS**), 2024

Experience

SNU Control and Optimization Research (CORE) Lab

Mar 2023 – PRESENT

Research Intern - Advisor: Prof. Insoon Yang

Seoul, South Korea

- Developed unified algorithm for Distributionally Robust Control and State Estimation in partially observable linear stochastic systems, addressing ambiguities in probability distributions of disturbances and measurement noise
- Formulated a tractable semidefinite programming problem that iteratively determines the worst-case covariance matrices of all uncertainties, significantly enhancing the scalability and efficiency of the proposed algorithm

NEARTHLAB

Jan 2024 – Feb 2024

Aerospace Engineering Intern, GNC Team

Seoul, South Korea

- Developed DOB and LQR based position/velocity controllers in C++ & ROS2 and tested through Gazebo simulation
- Integrated a flight controller with a companion computer for quadrotor offboard control, implemented DOB+LQR and DOB+PID trajectory tracking controllers, and conducted extensive outdoor flight experiments

Selected Projects (See more at [HERE](#))

Automated Hyperparameter Tuning Algorithm for MPPI Control

Sep 2023 – Jun 2024

Outstanding B.S. Thesis Presentation Award

Seoul, South Korea

- Developed an adaptive algorithm to automatically adjust the hyperparameter λ (Inverse Temperature) for MPPI control
- Implemented the algorithm in the MuJoCo MPC (MJPC) framework, improving control performance, reducing state fluctuations and control costs, and enabling smoother trajectories in quadrotor hovering and racing tasks

VTOL (Vertical Take-off and Landing) Projects

Mar 2024 – Sep 2024

Team Leader – Korea Robot Aircraft Competition (Grand Award)

Taeon, South Korea

- Developed two A-tail Quadplane VTOLs with autonomous flight capabilities, each with wingspans of 1.5m and 2.0m
- Led the full system engineering process, from selecting electronic components (servos, motors, flight controller, batteries, GPS, PDB, RC, etc.) to wiring, sensor calibration, and mission task planning

AIAA Design/Build/Fly (DBF) Competition

Sep 2024 – PRESENT

Control Team

Tucson, AZ, USA (2025)

- Developed guidance algorithm for a glider with a 250g weight limit, launched from a mothership at a 100m altitude
- Modified and tested PX4 guidance algorithm, followed by outdoor flight experiments to validate performance and ensure accurate landing on a target location.

Leadership / Extracurricular activities

Bulnabi - SNU Drone Club

Sep 2023 – PRESENT

Team Leader

Seoul, South Korea

- Led and developed over five Quadrotor Build/Fly seminars, teaching hardware assembly, sensor calibration, Ground Control Station usage, flight experiments, and flight log analysis
- Directed a 25-member team for the Korea Robot Aircraft Competition, focusing on VTOL system design and autonomous flight missions; conducted over 30 outdoor fixed-wing missions and successfully stabilized all flight phases.

KATUSA (Korean Augmentation to the United States Army)

Sep 2021 – Mar 2023

Squad Leader – Sergeant, 8th Army, Camp Humphreys

Pyeongtaek, South Korea

- Led and managed a 10-solider squad, ensuring their training, well-being, and mission preparedness
- Operated within a U.S. Army office, collaborating extensively with American colleagues on a daily basis
- Applied language proficiency to deliver crucial translation and interpretation support during Combined Exercises

Honors / Awards

Grand Award - Korea Robot Aircraft Competition

2024

1st Place among 39 University Teams

Minister of Commerce, Industry and Energy

Outstanding B.S. Thesis Presentation Award

2024

Department of Mechanical Engineering

Seoul National University

Outstanding Materials and Manufacturing Processes Award

2024

Materials and Manufacturing Processes Contest

Seoul National University

Excellence Award - Mechatronics Competition

2023

Department of Mechanical Engineering

Seoul National University

ARCOM (Army Commendation Medal)

2022

United States Department of the Army

Camp Humphreys

Kwanjeong Scholarship

2021

Recipient of a full tuition scholarship along with a stipend for two years

Kwanjeong Educational Foundation

Merit-based Scholarship

Spring 2020, Fall 2020

Department of Mechanical Engineering

Seoul National University

Technical Skills

Programming: C/C++, Python, MATLAB (Simulink)

Libraries/Softwares: PX4-Autopilot, ROS2, Gazebo, MuJoCo, PyTorch, SolidWorks, L^AT_EX

Hardwares: Drone operation, Soldering, Electronics, 3D Printing, Arduino