

Juyeop Han

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Research Interest

- **Guaranteeing or maximizing safety** in fields of robotics and machine learning
- **Integrating theoretical and practical approaches** for real-world application in robotics
- General and fundamental **research applicable to various fields** such as robotics, control theory, machine learning, and optimization

Education

Korea Advanced Institute of Science and Technology (KAIST)

MASTER'S STUDENT IN AEROSPACE ENGINEERING

- GPA: 3.92/4.0

Daejeon, S.Korea

Mar. 2021 - Feb. 2023

Seoul National University (SNU)

B.S. IN MECHANICAL ENGINEERING

- GPA: 3.83/4.0, **Summa Cum Laude**
- Leave of Absence for Mandatory Military Service (2017 - 2019)

Seoul, S.Korea

Mar. 2015 - Feb. 2021

Publications

- [C3] **J. Han***, Y.Min*, B.Jeong, H.Chae and H.Choi. "DS-K3DOM: 3-D Dynamic Occupancy Grid Mapping with Kernel Inference and Dempster-Shafer Evidential Theory" (*equal contribution) *International Conference on Robotics and Automation (ICRA)*, 2023 **(Accepted)**. [[preprint](#)] [[code](#)]
- [C2] **J. Han**, and H.Choi. "Computation of Tight Forward Reachable Set for a Multirotor based on the Nonlinear Adaptive Controller" *American Control Conference (ACC)*, 2023 **(Accepted)**. [[preprint](#)]
- [C1] **J. Han**, M. Tahk, and H. Choi, "Pseudospectral method-based safe motion planning for quadrotors in a cluttered environment" *AIAA Science and Technology Forum (Scitech)*, 2022. [[paper](#)]

Research Experience

Autonomous Decision and Control Lab, CU Boulder

VISITING SCHOLAR | ADVISOR: PROF. ZACHARY SUNBERG

- developing decision making algorithm of control system with temporal logic and reachability

Boulder, Colorado

Oct. 2022 - Feb. 2023

Lab for information and Control Systems, KAIST

RESEARCH ASSISTANT | ADVISOR: PROF. HAN-LIM CHOI

- Proposed algorithm for kernel-based 3-dimensional dynamic occupancy grid map (DS-K3DOM) [C3]
- Proposed method for real-time computation of tighter forward reachable set (FRS) of multirotor [C2]
- Planned optimal trajectory in cluttered environment for quadrotors [C1]
- installed sensors to hardware equipment for research projects funded by [KI-Robotics](#) and [ADD](#)
- maintained motion capture system in [KARPE](#)

Daejeon, S.Korea

Jan. 2021 - Present

Innovative Design and Integrated Manufacturing Lab, SNU

RESEARCH INTERN | ADVISOR: PROF. SUNG-HOON AHN

- Conducted thesis research on planning path and object recognition of 6 DOF robot actuator for surface cleaning

Seoul, S.Korea

Jun. 2020 - Aug. 2020

Workshop Organization

Inference and Decision Making for Autonomous Vehicles (IDMAV)

WORKSHOP AT ROBOTICS: SCIENCE AND SYSTEMS (RSS) 2023

- Organizing [workshop](#) with researchers at KAIST and CU Boulder

Daegu, S. Korea

Jul. 2023

Review Activities

- IEEE Control System Letters (L-CSS), 2022

Skills

- Programming** C/C++, Python, MATLAB
Libraries & Tools ROS, CUDA, Pytorch, LaTeX, SolidWorks
Languages Korean (Native), English (Fluent, 2 years in U.S. military, GRE 157/168/3.5, TOEFL MyBest 100)

Honors & Awards

SCHOLARSHIPS

- 2023 - 2025 **Korean Government Scholarship for Ph.D Program**, USD 40,000 per year, Government of S. Korea
2021 - 2023 **Government-Funded Scholarship**, 90% Tuition, KAIST
Sp. 2020 **SNU Alumni-Funded Scholarship**, Full Tuition, SNU Alumni Foundation
2015 - 2017 **Merit-Based Scholarship**, {50%, Full \times 2, 33%} Tuition, SNU and SNU Foundation

*the U.S.
Daejeon, S.Korea
Seoul, S.Korea
Seoul, S.Korea*

AWARDS

- Dec. 2019 **Outstanding Award**, SNU ME Materials and Manufacturing Process Course
Jun. 2016 **Participation Award**, Seoul Hackathon, Administration of Seoul
Dec. 2015 **Creative Award**, SNU ME Creative Engineering Design Course

*Seoul, S.Korea
Seoul, S.Korea
Seoul, S.Korea*

Extracurricular Activities

2nd Infantry Divison, US Army

UNIT SUPPLY SPECIALIST, SERGEANT

- Served in military as Korean augmentation to the United States army(KATUSA) agent.
- Managed unit supply in air ambulance company.
- Partly was in charge of COC (Change of Command) inspection and ARMS inspection

*Pyeongtaek, S.Korea
Nov. 2017 – Aug. 2019*

DALISHA (SNU Running Crew)

LEADERSHIP MEMBER

- Led running during COVID-19.
- Managed accounting in the crew.

*Seoul, S.Korea
Sep. 2018 - Feb. 2021*