

# HOJUNE KIM

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## RESEARCH INTERESTS

**Robot Perception:** Multi-sensor SLAM, Autonomous Navigation, Multi-agent Systems  
**System Engineering:** System Design, Modelling and Manufacture

## EDUCATION

**Seoul National University (SNU)** Mar. 2019 – Present  
B.S. in Aerospace Engineering, summa cum laude (expected) *Seoul, South Korea*  
• GPA: 4.21/4.30(Major), 4.07/4.30(Overall) \* 1.5-year absence from military service  
**ETH Zürich** Feb. 2024 – Aug. 2024  
Exchange Student in Mechanical Engineering *Zurich, Switzerland*

## WORKING EXPERIENCE

**German Aerospace Center DLR** Sept. 2024 – Present  
*Guest Student Researcher, Advisor: Prof. Jinoh Lee* *Munich, Germany*  
• Topic : Humanoid Navigation via Semantic Mapping and Force-Torque Sensor Adjustments

## RESEARCH EXPERIENCES

**Vision for Robotics Lab | ETH Zürich** Feb. 2024 – Aug. 2024  
*Semester Project Intern, Advisor: Prof. Margarita Chli* *Zurich, Switzerland*  
• Topic : Continuous-Time SLAM via Gaussian Belief Propagation for distributed system  
**Robust Perception and Mobile Robotics Lab | SNU** Jan. 2023 – Mar. 2024  
*Undergraduate Researcher, Advisor: Prof. Ayoun Kim* *Seoul, South Korea*  
• Topic : Robust mmWave Radar Odometry / Direct SLAM with Infrared camera and LiDAR  
• Topic : Handheld Sensor System Development / Camera-LiDAR-Radar Calibration via Graph Optimization  
**Satellite Geophysics Lab | SNU** Aug. 2020 – May. 2021  
*Undergraduate Researcher, Advisor: Prof. Duk-jin Kim* *Seoul, South Korea*  
• Topic : Real-time flood monitoring system via segmentation using satellite SAR image

## PUBLICATION

**Peer-Reviewed Workshop Paper**  
• H. Kim, H. Jang and A. Kim. 2D Ego-Motion with Yaw Estimation using Only mmWave Radars via Two-Way weighted ICP. **ICRA2024 Workshop on Radar in Robotics**, Yokohama, Japan, 2024.

## HONORS & AWARDS

Awards:

**Gold Prize, International Student Car Competition Autonomous Driving Sector** Oct. 2021  
*Ministry of Land, Infrastructure and Transport, Republic of Korea*  
**Minister of National Defense Award, Minister of Defense Startup Competition** Dec. 2022  
*Ministry of National Defense, Republic of Korea*  
**Final Selected, Star-Exploration Startup Support Project** Feb. 2021  
*Korea Aerospace Research Institute(KARI)*

Honors:

**Korea-Germany Junior Research Fellowship Support, \$9,000 | Max Planck POSTECH** Sept. 2024  
• Full coverage of expenses during in DLR as a guest researcher  
**Kwanjeong Undergraduate Scholarship | Kwanjeong Educational Foundation** Mar. 2021  
• Full coverage of junior and senior tuition and \$2,200 per semester

<b>Global Leadership Program Scholarship</b> , \$3,300   SNU	Spring 2024
<b>Certificate of Appreciation(AI Tech Play)</b>   Dean, College of Engineering in SNU	Jun. 2021
<b>Undergraduate Research Internship Scholarship</b>   SNU	Mar. 2020
<b>Merit-based Scholarship</b>   SNU	Fall 2019, Spring & Fall 2020

## SELECTED GRADUATE COURSE PROJECTS

<b>Perception and Learning for Robotics</b>   ETH Zürich	Spring 2024
Topic: Crowd Navigation with LiDAR via Reinforcement Learning	
• Trained End-to-end model by teacher-student policies in Orbit(built on Isaac Sim)	
<b>Decision Making for Autonomous Aerospace Systems</b>   SNU	Spring 2023
Topic: Fault Tolerant Control of Quadrotor	
• Designed Controller via Feedback Linearization, Sliding Mode and Backstepping methods	
<b>Sensor-Based Spatial Intelligence</b>   SNU	Fall 2023
Topic: Analysis of LiDAR-Inertial SLAM in long-term localization	
• Compared and evaluated LiDAR-Inertial SLAM in urban datasets	

## MEMBERSHIPS & ACTIVITIES

<b>Army Aviation Operations Command</b>   Republic of Korea Army	Aug. 2021 – Feb. 2023
<i>CH-47D Helicopter Maintenance Mechanics &amp; Flight Attendant</i>	
• Produced CH-47D maintenance and put on tactical missions including forest fire extinguish for 60+ hours flight	
<b>AI Tech Play(KAIT Foundation)</b> , Non-Profit Organization for AI education	Feb. 2021 – Aug. 2021
<i>Tech/Assembly Team Leader</i>	
• Served as Organizer : AI RC-car competition for nationwide students(200+ students participated)	
• Served as Developer : Modeled and manufactured AI RC-car system from skeleton for education and competition	
<b>SNU ZERO</b> , Autonomous Driving Car Club   SNU	Jan. 2021 – Oct. 2021
• Performed Extended-Kalman Filter with IMU, GPS and land detection for robust localization	
• Developed dynamic obstacle avoidance by clustering LiDAR and combining vision detection	
<b>Bulnabi</b> , Autonomous Flight Drone Club   SNU	Feb. 2023 – Jan. 2024
• Developed auto-landing algorithm with path planning via bezier curve for continuous trajectory and control	
• Verified in Gazebo simulation and on-board flight tests; finalizing technology transfer to the company	
<b>SNU Tomorrow's Engineers Membership(STEM)</b>   SNU	Sept. 2023 – Present
• Launched academic mentoring : Organized a mentoring seminar for engineering freshmen	
• Launched academic talks : LiDAR vs Radar in perception field / Start-up business model building	
<b>Science Volunteer Corps</b>   SNU	Jul. 2019
• Held science experiment and mentoring camp for students in Gochang	

## TEACHING EXPERIENCES

<b>Teaching Assistant</b>	Spring 2023
(M3228.001300) Basic of Robot Programming and Mechanical System Design   SNU	
• Taught machine learning algorithms in Python and developed propeller competition kits for 100+ students	
<b>Teaching Tutor</b>	Fall 2023
Engineering Mathematics I & Dynamics   SNU	

## PATENT

<b>Parking Location Tracking System</b> , KR102291377B1	2021
• <u>H. Kim</u> , T. Kim, J. Na, J. Lee, S. Jeong	

## SKILLS

<b>Programming:</b> C/C++ , Python, Matlab, Javascript	<b>Manufactures:</b> SolidWorks, 3D printer(Stratasys), Laser cutter
<b>Frameworks:</b> ROS, Isaac Sim, Gazebo, Pytorch, Ceres	<b>Tools:</b> PX4-Autopilot, Docker, Figma, QGIS