

# Hojune Kim

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## RESEARCH INTERESTS

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**Robot Perception:** multi-sensor SLAM, Graph Optimization, Multi-agent Systems  
**System Engineering:** System Design, Modelling and Manufacture

## EDUCATION

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**Seoul National University** Mar. 2019 – Aug. 2025(Expected)  
*B.S. in Aerospace Engineering* *Seoul, South Korea*  
• GPA: 4.21/4.30(Major), 4.07/4.30(Overall)

**ETH Zürich** Feb. 2024 – Aug. 2024  
*Exchange Student in Mechanical Engineering* *Zürich, Switzerland*

## WORKING EXPERIENCE

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**German Aerospace Center DLR** Sept. 2024 – Feb. 2025(Expected)  
*Guest Researcher, Advisor: Prof. Jinoh Lee* *Munich, Germany*  
• Topic : Vision based Ground Perception for Humanoid Robot

## RESEARCH EXPERIENCES

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**Vision for Robotics Lab** Feb. 2024 – Aug. 2024  
*Undergraduate Researcher, Advisor: Prof. Margarita Chli* *ETH Zürich*  
• Topic : Continuous-Time SLAM via Gaussian Belief Propagation for distributed system

**Robust Perception and Mobile Robotics Lab** Jan. 2023 – Mar. 2024  
*Undergraduate Researcher, Advisor: Prof. Ayoun Kim* *Seoul National University*  
• Topic : Robust mmWave Radar Odometry / Direct SLAM with Infrared camera and LiDAR /  
Camera-LiDAR-Radar Calibration via Graph Optimization

**Satellite Geophysics Lab** Aug. 2020 – May. 2021  
*Undergraduate Researcher, Advisor: Prof. Duk-jin Kim* *Seoul National University*  
• Topic : Real-time flood monitoring system via segmentation using satellite SAR image

## PUBLICATION

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**Peer-Reviewed Workshop Paper**

- (Oral) 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

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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

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

## GRADUATE COURSE PROJECTS

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|---|---|
| <b>Perception and Learning for Robotics(5.5/6.0)</b><br><i>Topic: Crowd Navigation with LiDAR via Reinforcement Learning</i><br><ul style="list-style-type: none"> <li>Trained End-to-end model by teacher-student policies in Orbit(built on Isaac Sim)</li> </ul> | Spring 2024<br><i>ETH Zürich</i>                |
| <b>Decision Making for Autonomous Aerospace Systems(A+)</b><br><i>Topic: Fault Tolerant Control of Quadrotor</i><br><ul style="list-style-type: none"> <li>Designed Controller via Feedback Linearization, Sliding Mode and Backstepping</li> </ul>                 | Spring 2023<br><i>Seoul National University</i> |
| <b>Sensor-Based Spatial Intelligence(A0)</b><br><i>Topic: Analysis of LiDAR SLAM in long-term localization</i><br><ul style="list-style-type: none"> <li>Compared LiDAR SLAM in urban datasets for long term localization</li> </ul>                                | Fall 2023<br><i>Seoul National University</i>   |

## MEMBERSHIPS & ACTIVITIES

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|---|-----------------------|
| <b>AI Tech Play(KAIT Foundation)</b> , Non-Profit Organization for AI education<br><i>Tech/Assembly Team Leader</i><br><ul style="list-style-type: none"> <li>served as Organizer : AI RC-car competition for nationwide students(200+ students participated)</li> <li>served as Developer : Modeled and manufactured AI RC-car system from skeleton for education and competition</li> </ul> | Feb. 2021 – Aug. 2021 |
| <b>SNU Tomorrow's Engineers Membership(STEM)</b> , SNU<br><ul style="list-style-type: none"> <li>Launched academic mentoring : Organized mentoring seminar for engineering freshmen</li> <li>Launched academic talks : LiDAR vs Radar in perception field / Start-up business model building</li> </ul>   | Sept. 2023 – Present  |
| <b>CH-47D Flight Attendant</b> , Republic of Korea Army<br><ul style="list-style-type: none"> <li>Put on tactical missions including forest fire extinguish mission during the military service</li> </ul>  | Aug. 2021 – Feb. 2023 |
| <b>SNU ZERO</b> , Autonomous Driving Car Club in SNU<br><ul style="list-style-type: none"> <li>Performed Extended-Kalman Filter with IMU, GPS and land detection for robust localization</li> <li>Developed dynamic obstacle avoidance by clustering LiDAR and combining vision detection</li> </ul>  | 2021                  |
| <b>Bulnabi</b> , Autonomous Flight Drone Club in SNU<br><ul style="list-style-type: none"> <li>Developed auto-landing algorithm with path planning via bézier curve for continuous trajectory and control</li> <li>Verified in Gazebo simulation and on-board flight tests; finalizing technology transfer to the company</li> </ul>  | 2023                  |
| <b>Science Volunteer Corps</b> , SNU<br><ul style="list-style-type: none"> <li>Held science experiment and mentoring for students in Gochang</li> </ul>   | Jul. 2019             |

## TEACHING EXPERIENCE

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| <b>Teaching Assistant</b><br>(M3228.001300)Basic of Robot Programming and Mechanical System Design<br><ul style="list-style-type: none"> <li>taught ML algorithms in Python and soldered propeller competition kits for 100+ students</li> </ul> | Spring 2023<br><i>Seoul National University</i> |
| <b>Teaching Tutor</b><br>Engineering Mathematics I & Dynamics  | Fall 2023<br><i>Seoul National University</i>   |

## PATENT

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|---|------|
| <b>Parking Location Tracking System</b> , KR102291377B1<br><ul style="list-style-type: none"> <li><u>H. Kim</u>, T. Kim, J. Na, J. Lee, S. Jeong</li> </ul> | 2021 |
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## SKILLS

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