Hojune Kim

B.S. Student in Aerospace Engineering,
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Personal Website

RESEARCH INTERESTS

SLAM, Sensor Fusion, 3D Computer Vision, Nonlinear Control

EDUCATION

Seoul National University, *South Korea* *2019 - Present*
B.S. in Aerospace Engineering
GPA: 4.07/4.30 (Major: 4.24/4.30)

- Major Coursework: Decision Making for Autonomous Aerospace Systems, Principles of Flight Vehicle Control, Aerospace Sensor Systems, Introduction to Computer Vision

Gyeonggi Science High School for the Gifted, *South Korea* *2016 - 2019*

RESEARCH EXPERIENCE

Robust Perception and Mobile Robotics Lab, *SNU* *Jan 2023 - May 2023*
Research Intern, Advisor: Prof. Ayoung Kim
Topic: Modeling Multimodal Sensor system for Long-term Localization

- 3D printed the handheld system for 3D LiDAR, RGB-D Camera, Thermal Camera, IMU, GNSS sensor fusion
- Applying Thermal-LiDAR direct odometry SLAM(DSO) under ROS1
- Carry out Thermal-LiDAR calibration methods

Satellite Geophysics Lab, *Seoul National University* *Aug 2020 - Jun 2021*
Research Intern, Advisor: Prof. Duk-jin Kim
Topic: Real-time flood monitoring system by water segmentation using Sentinel-1 satellite SAR image

- Trained flood segmentation model based on DeepLab V3+ with SAR image
- Automized a system of train data achieve and labeling from land cover map

TECHNICAL EXPERIENCE

SNU ZERO, *VDCL Lab. SNU* *Mar 2021 - Oct 2021*
Sensor Fusion team, Autonomous driving algorithm academic club

- Autonomous driving algorithm research club
- Used Velodyne lidar, GPS, IMU etc., ADAS sensors under ROS1
- Sensor fusion to estimate car's perception and develop the autonomous driving algorithm

AI Tech Play, *College of Engineering in SNU* *Feb 2021 - Aug 2021*
Hardware Team Leader, AI education sharing Oragnization

- Planned and held the AI RC-car competition for children nationwide (over 200 students participated)
- Designed and manufactured RC-car with rgb-d camera, lidar and jetson board
- Applied autonomous driving skills in RC-car under ROS2

TECHNICAL SKILLS

Languages: Python, C/C++, javascript
Frameworks: ROS1/2, OpenCV, Tensorflow
Tools: Matlab, SolidWorks, Bash, QGIS

AWARDS & HONORS

Kwanjeong Undergraduate Scholarship *Mar 2021*
Full coverage of junior and senior tuition & stipend

Gold Prize, International Student Car Competition *Oct 2021*
Autonomous driving sector

Excellence Prize, Ministry of Defense Startup Competition *Dec 2022*
Minister of National Defense Award

Final Selected, Star-Exploration Startup Support Project *Feb 2021*
Korea Aerospace Research Institute(KARI)

Certificate of Appreciation(AI Tech Play) *Jun 2021*
Dean, College of Engineering in Seoul National University

Bronze Prize, Human Tech Paper Award *Aug 2018*
Samsung Electronics, High School Students section

TEACHING EXPERIENCE

Teaching Assistant, *at SNU* *Spring 2023*
Basic of Robot Programming and Mechanical System Design

Teaching Tutor, *at SNU* *Fall 2023*
Dynamics and Engineering Mathematics

PROJECTS

Autonomous Flight Control in Quadrotor system *2023*
Path planning via bézier curve, auto landing in simulation and real flight

Fault Tolerant Control of Quadrotor *2023*
Design Controller via Feedback Linearization, Sliding Mode and Backstepping

Display a Virtual Object on My Desk *2023*
Feature matching and 3D Reconstruction with images on SE(3)

Web Scrapper Extension for blog and community editor *2022*
Develop chrome extension under vanilla JS

PATENT

Parking Location Tracking System, *KR102291377B1* *2021*
- **H.J. Kim**, T.I. Kim, J.H. Na, J.Y. Lee, S.H. Jeong

EXTRA CURRICULAR

CH-47 Helicopter Flight Attendant, *ROKA* *Aug 2021 - Feb 2023*
Put on the forest fire extinguish mission(Uljin, Young-dok)

Cube-Satellite Club, *GNSS Lab. SNU* *May 2020 - Jun 2021*
Studied MFC programming and signal processing with Atmega128

Science Volunteer Corps, *College of Natural Sciences in SNU* *Jul 2019*