Hogyun **Kim**

WHO WANTS TO BE A SLAM ENGINEER

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Education

Inha University   *Incheon, S.Korea*

M.S. - PH.D. INTEGRATED IN ELECTRICAL AND COMPUTER ENGINEERING   *Mar. 2023 -*

- Advisor: Younggun Cho

Inha University   *Incheon, S.Korea*

B.S. IN NAVAL ARCHITECTURE AND OCEAN ENGINEERING   *Mar. 2017 - Feb. 2023*

- Minor: Information and Communication Engineering
- Got an Inha Naval Architecture and Ocean Engineering Alumni Association Scholarship which is given to promising students in NOE Dept.

Research Interest

SLAM

LIGHTWEIGHT AND EFFICIENT ALGORITHMS THAT MAKE UP THE SLAM

- Lightweight Place Recognition, Graph Sparsification, Multi-Robot, Ranging Sensors (LiDAR, Radar, SONAR), Underwater, Maritime

Publications

INTERNATIONAL

Uni-Mapper: Unified Mapping Framework for Multi-modal LiDARs in Complex and Dynamic Environments

IEEE TRANSACTIONS ON INTELLIGENT VEHICLES (UNDER-REVIEW)   *2024*

- Gilhwan Kang, **Hogyun Kim**, Byunghee Choi, Seokhwan Jeong, Young-Sik Shin and Younggun Cho

Narrowing your FOV with SOLiD: Spatially Organized and Lightweight Global Descriptor for FOV-constrained LiDAR Place Recognition

IEEE ROBOTICS AND AUTOMATION LETTERS (UNDER-REVIEW)   *2024*

- **Hogyun Kim**, Jiwon Choi, Taehu Sim, Giseop Kim, and Younggun Cho

DiTer: Diverse Terrain and Multi-Modal Dataset for Field Robot Navigation in Outdoor Environments

IEEE SENSORS LETTERS   *Jan. 2024*

- Seokhwan Jeong (*), **Hogyun Kim** (*), Younggun Cho
- (*) Equally contributed.

Robust Imaging Sonar-based Place Recognition and Localization in Underwater Environments   *London, England*

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)   *May. 2023*

- **Hogyun Kim**, Gilhwan Kang, Seokhwan Jeong, Seungjun Ma, Younggun Cho

DOMESTIC

Study on Efficient Multi-floor Navigation Using a Visual Marker and Floor Plan Map

JOURNAL OF INSTITUTE OF CONTROL, ROBOTICS AND SYSTEMS   *Jan. 2024*

- Jiwon Choi, Taehu Sim, Gihyeon Lee, Jaeyong Lee, Gilhwan Kang, **Hogyun Kim**, Younggun Cho

PREPRINT

ReFeree: Radar-based efficient global descriptor using a Feature and Free space for Place Recognition

ARXIV, PREPRINT   *May. 2024*

- Byunghee Choi (*), **Hogyun Kim** (*), Younggun Cho
- (*) Equally contributed.

Honors & Awards

2024	**3rd prize**, Best Research Award on ICRA 2024 3rd Workshop on Future of Construction: Lifelong Learning Robots in Changing Construction Sites	*Yokohama, Japan*

DOMESTIC

2021	**1st Prize**, Vertically Integrated Project (VIP) in Inha University	*Incheon, S.Korea*
2021	**2nd prize in Qualifying Round**, Autonomous Car Competition for College Student	*Hwaseong, S.Korea*
2021	**Control prize in Desing/Making**, Korea Autonomous Boat Competition (KABOAT)	*Changwon, S.Korea*
2021	**6th prize**, Korea Autonomous Boat Competition (KABOAT)	*Changwon, S.Korea*
2020	**1st Prize**, Vertically Integrated Project (VIP) in Inha University	*Incheon, S.Korea*
2020	**1st Prize in Autopilot**, Korea Autonomous Boat Competition (KABOAT)	*Changwon, S.Korea*
2020	**4th Prize**, Korea Autonomous Boat Competition (KABOAT)	*Changwon, S.Korea*

Presentation

ReFeree: Radar-based efficient global descriptor using a Feature and Free space for Place Recognition *Yokohama, Japan*

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA) WORKSHOP ON RADAR IN ROBOTICS *May. 2024*

- Byunghee Choi*, **Hogyun Kim***, and Younggun Cho
- (*) Equally contributed.

Robust Sonar-based Place Recognition in Underwater Environments *Kyoto, S.Korea*

IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS) LATE-BREAKING *Nov. 2022*

- **Hogyun Kim** and Younggun Cho

Projects

Stereo camera based Real-Time Object Localization for Autonomus Surface Vechicle *Dajeon, S.Korea*

SAMSUNG HEAVY INDUSTRY *Jun. 2023 - Dec. 2023*

Awesome LiDAR Place Recognition [GitHub] *Stars: 68*

PERSOANL

Skills

Python, C++, Matlab, ROS, Latex