

Younggun Cho

ASSOCIATE PROFESSOR

Hi-Tech Center, Inha University, 100 Inha-ro, Michuhol-gu, Incheon 22212, Republic of Korea

☎ (+82) 32-860-7398 | ✉ yg.cho@inha.ac.kr / yg.b.cho@gmail.com | 🌐 sparolab.github.io/ | 📷 youngguncho

Position

Associate Professor

Inha University, S.Korea

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Sep. 2021 - Current

- Multi-robot Spatial Intelligence (SLAM)
- Robust Perception of Field Robots
- Long-term Autonomy

Technical Advisor

Riibotics, S.Korea

RESEARCH TEAM

Feb. 2025 - Current

- Robot Autonomy in Brown Field
- Robust Perception and Long-term Autonomy

Assistant Professor

Yeongnam University, S.Korea

DEPARTMENT OF ROBOT ENGINEERING

Sep. 2020 - Aug. 2021

- SLAM in extreme environments with robust sensing
- Unsupervised learning-based motion estimation

Intelligent Robotic Autonomy and Perception (IRAP) Lab (Prof. Ayoung Kim)

KAIST, Daejeon, S.Korea

POSTDOCTORAL RESEARCHER

Mar. 2020 - Aug. 2020

- SLAM in extreme environments with robust sensing
- Unsupervised learning-based motion estimation

Education

KAIST (Korea Advanced Institute of Science and Technology)

Daejeon, S.Korea

PH. D. IN CIVIL AND ENVIRONMENTAL ENGINEERING (DUAL DEGREE IN ROBOTICS PROGRAM)

Sep. 2015 - Feb. 2020

- Advisor: Ayoung Kim
- Thesis: Online Image Enhancement for Robust Visual Perception in Hazy Environment

KAIST (Korea Advanced Institute of Science and Technology)

Daejeon, S.Korea

M.S. IN ELECTRICAL ENGINEERING

Feb. 2013 - Feb. 2015

- Advisor: Myung Jin Chung
- Thesis: Accurate and fast vehicle detection in complex parking environments

Inha University

Incheon, S.Korea

B.S. IN ELECTRICAL ENGINEERING

Feb. 2006 - Feb. 2013

Research Interests

Collaborative Intelligence

Collaborative spatial intelligence, Multi-robot SLAM, Knowledge sharing between robots

Robust Perception

Multimodal sensing with vision, LiDAR, radar, thermal imaging, and sonar

Long-term Autonomy

Field, planetary, and maritime robotics, Learning-assisted mapping and navigation

Academic Service

IEEE RAS Technical Committee on Marine Robotics

CO-CHAIR

Jan. 2026 - Current

Organizing Committee

- IEEE International Conference on Robotics and Automation (ICRA) 2027
- IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR) 2026
- International Conference on Control, Automation, and Systems (ICCAS) 2026
- Korea Robotics Society Annual Conference (KRoc): 2022 (OS/Workshop), 2024 (Concurrent Journal Submission), 2026 (Publicity and Social Media), 2027 (Flagship Session)

Associate Editor

- IEEE Robotics and Automation Letters (RA-L), Localization and Mapping, **Current**
- IEEE International Conference on Robotics and Automation (ICRA), Autonomy for Mobility and Manipulation 2, **2026**
- Intelligent Service Robotics, **2025-Current**
- IEEE International Conference on Ubiquitous Robots (UR), **2020, 2021, 2023, 2024**
- International Conference on Control, Automation, and Systems (ICCAS), Regular Papers, **2024, 2026**
- The Korean Society of Intelligent Transport Systems (ITS Journal), **2025-Current**

Reviewer

- IEEE Transactions on Robotics (T-RO)
- International Journal of Robotics Research (IJRR)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Robotics and Automation Letters (RA-L)
- IEEE Robotics and Automation Magazine (RA-M)
- IEEE Transactions on Intelligent Transportation Systems (T-ITS)
- IEEE Transactions on Intelligent Vehicles (T-IV)
- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Intelligent Robots (IROS)
- IEEE Intelligent Vehicle Symposium (IV)
- IEEE Sensors Journal

Selected Publications

SKiD-SLAM: Resource-Aware Distributed Multi-Robot LiDAR SLAM for Planetary Missions with Field Deployments at Analog Sites

IEEE TRANSACTIONS ON FIELD ROBOTICS (T-FR)

2026

- Hogyun Kim, Juwon Kim, Dongjin Cho, Jiwon Choi, Geonmo Yang, Seokhwan Jeong, Jiyun Lee, Miryeong Park, Hyungtae Lim, and **Younggun Cho**

Commerge: Communication-Efficient, Robust, and Fast LiDAR Map Merging Framework for Multi-Robot Coordination in Resource-Constrained Scenarios

INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH (IJRR)

2026

- Hogyun Kim, Jiwon Choi, Juwon Kim, Geonmo Yang, Seokhwan Jeong, Hyungtae Lim, and **Younggun Cho**

RadLoc: Radar-based 3-DoF Global Localization via Fast, Robust, and Lightweight Spatial Descriptor Across Diverse Environmental Scenarios

IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS)

2026

- Hogyun Kim, Jiwon Choi, Jungwoo Lee, and **Younggun Cho**

GSAT: Geometric Traversability Estimation using Self-supervised Learning with Anomaly Detection for Diverse Terrains

Vienna, Austria

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

June 2026

- Dongjin Cho, Miryeong Park, Juhui Lee, Geonmo Yang, and **Younggun Cho**

KISS-IMU: Self-supervised Inertial Odometry with Motion-balanced Learning and Uncertainty-aware Inference

Vienna, Austria

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

June 2026

- Jiwon Choi, Hogyun Kim, Geonmo Yang, Juhui Lee, and **Younggun Cho**

MSG-Loc: Multi-Label Likelihood-based Semantic Graph Matching for Object-Level Global Localization (Accepted)

IEEE ROBOTICS AND AUTOMATION LETTERS (RA-L)

2026

- Gihyeon Lee, Jungwoo Lee, Juwon Kim, Young-Sik Shin, and **Younggun Cho**

Freeze-Frame with StaticNeRF Uncertainty-Guided NeRF Map Reconstruction in Dynamic Scenes (Accepted)

IEEE ROBOTICS AND AUTOMATION LETTERS (RA-L)

2026

- Juhui Lee, Geonmo Yang, Seungjun Ma, and **Younggun Cho**

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

IEEE TRANSACTIONS ON INTELLIGENT VEHICLES (T-IV)

2025

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

TRIDENT: Efficient Triple-Task Learning of Dehazing, Depth and Uncertainty Estimation for Underwater 3D Robot Visual Perception

IEEE SENSORS JOURNAL

2025

• Geonmo Yang and **Younggun Cho**

CUTE-Planner: Confidence-aware Uneven Terrain Exploration Planner

INTERNATIONAL CONFERENCE ON SPACE ROBOTICS (iSPaRo)

Sendai, Japan

Dec. 2025

• Miryeong Park, Dongjin Cho, Sanghyun Kim, and **Younggun Cho**

MARSCalib: Multi-robot, Automatic, Robust, Spherical Target-based Extrinsic Calibration in Field and Extraterrestrial Environments

IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS)

Hangzhou, China

Nov 2025

• Seokhwan Jeong, Hogyun Kim and **Younggun Cho**

DiTer++: Diverse Terrain and Multi-modal Dataset for Multi-Robot SLAM in Multi-session Environments

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Atlanta, USA

May 2025

• Juwon Kim, Hogyun Kim, Seokhwan Jeong, Youngsik Shin, and **Younggun Cho**

PoLaRIS Dataset: A Maritime Object Detection and Tracking Dataset in Pohang Canal

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Atlanta, USA

May 2025

• Jiwon Choi, Dongjin Cho, Gihyeon Lee, Hogyun Kim, Geonmo Yang, Joowan Kim and **Younggun Cho**

ReFeree: Radar-Based Lightweight and Robust Localization Using Feature and Free space

IEEE ROBOTICS AND AUTOMATION LETTERS (RA-L)

2024

• Hogyun Kim*, Byunghee Choi*, Euncheol Choi, 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 (RA-L)

2024

• Hogyun Kim, Jiwon Choi, Taehu Shim, Giseop Kim, and **Younggun Cho**

Joint-ID: Transformer-based Joint Image Enhancement and Depth Estimation for Underwater Environments

IEEE SENSORS JOURNAL

2024

• Geonmo Yang, Gilhwan Kang, Juhui Lee, **Younggun Cho**

Salience-guided Ground Factor for Robust Localization of Delivery Robots in Complex Urban Environments

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Yokohama, Japan

May 2024

• Jooyong Park, Jungwoo Lee, Euncheol Choi, and **Younggun Cho**

Robust Imaging Sonar-based Place Recognition and Localization in Underwater Environments

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

London

May 2023

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

Nonparametric Background Model-Based LiDAR SLAM in Highly Dynamic Urban Environments

IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS

2022

• Joohyun Park, **Younggun Cho***, Young-Sik Shin*

Proactive Camera Attribute Control using Bayesian Optimization for Illumination-Resilient Visual Navigation

IEEE TRANSACTIONS ON ROBOTICS (T-RO)

2020

• Joowan Kim, **Younggun Cho** and Ayoung Kim

Underwater Image Dehazing via Unpaired Image-to-image Translation

INTERNATIONAL JOURNAL OF CONTROL, AUTOMATION AND SYSTEMS (IJCAS)

2020

• **Younggun Cho***, Hyesu Jang*, Ram Malav, Grurav Pandey and Ayoung Kim

Unsupervised Geometry-Aware Deep LiDAR Odometry

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Paris

May 2020

• **Younggun Cho**, Giseop Kim and Ayoung Kim

Model Assisted Multi-band Fusion for Single Image Enhancement and Applications to Robot Vision

IEEE ROBOTICS AND AUTOMATION LETTERS (RA-L WITH IROS) 2018
• **Younggun Cho**, Jinyong Jeong and Ayoung Kim

Channel Invariant Online Visibility Enhancement for Visual SLAM in a Turbid Environment

JOURNAL OF FIELD ROBOTICS (JFR) 2018
• **Younggun Cho** and Ayoung Kim

Visibility Enhancement for Underwater Visual SLAM based on Underwater Light Scattering Model

IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA) Singapore
May 2017
• **Younggun Cho** and Ayoung Kim

Selected Honors and Team Achievements

2026	Best Paper on Robot Perception Finalist , KISS-IMU, IEEE International Conference on Robotics and Automation (ICRA)	IEEE RAS
2026	Outstanding WiRA Student Paper Award , KISS-IMU, IEEE International Conference on Robotics and Automation (ICRA)	IEEE RAS
2026	2nd Place, SLAM Category , Hilti-Trimble SLAM Challenge	SPARO Lab and Riibotics
2026	4th Place, Home Service , RoboCup@Home	Inha United
2026	9th Place, Middle Size Humanoid , RoboCup Soccer	Inha United
2025	New Generation Star Project Award , New Generation Star Project Award at IROS 2025	Nokov
2024	Minister of Trade, Industry and Energy Award , 2024 Embedded Software Competition	Minister of Trade, Industry and Energy
2024	Best Research Award (3rd Place) , 2024 IEEE ICRA Workshop on Future of Construction	Baidu Research
2024	Best Paper Award , 2024 Institute of Control, Robotics and Systems (ICROS)	ICROS
2022	Best Paper Award (Ugrad) , 2022 Korea Robotics Society Annual Conference (KRoC)	KROS
2019	Best Poster Award , ICRA Workshop on Dataset Generation and Benchmarking of SLAM Algorithms	KUJIALE.COM

Projects

Grant: National Research Foundation

BASIC RESEARCH LAB 2025 - 2028
• AI-RAN for Intelligent Robots
• Development of multi-robot collaborative intelligence

Grant: National Research Foundation

STEAM RESEARCH PROGRAM (FUTURE PIONEERING CONVERGENT TECHNOLOGY) 2024 - 2025
• Research on Self-learning Heterogeneous Robots for Continuous Autonomous Planetary Exploration

Grant: IITP (Institute for Information & communications Technology Promotion)

DEEP TOTAL RECALL: CONTINUAL LEARNING FOR HUMAN-LIKE RECALL OF ARTIFICIAL NEURAL NETWORKS 2022 - 2026
• Continual Learning for Human-Like Recall of Artificial Neural Networks (Spatial AI)

Grant: Ministry of Oceans and Fisheries

SMART OCEAN INSPECTION AND INFORMATION ENGINEERING 2021 - 2025
• Development of Underwater Vision-based Mapping Algorithms (with Enhancement)

Grant: Industry Project

SAMSUNG HEAVY INDUSTRY 2023 - 2025
• Stereo vision-based multiple objects localization for unmanned surface vehicles

Teaching

Graduate Course	Visual SLAM, Special Lecture on Localization, Mobile Robot Mapping
Undergraduate Course	Automatic Control, Robot Signal Processing, Data Structure, Image Processing